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AMERICAN Cinematographer

The Magazine of Motion Picture Photography

SEEKING A MARKET FOR YOUR FILMS?

—A Survey For 16mm Film Makers

DO-IT-YOURSELF INDUSTRIALS IN 8MM & SOUND

MOTION PICTURE SET LIGHTING

ALSO

- 1960 "Oscar" Nominees
- Filming The Danny Thomas Show

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Cinematographer

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April, 1961 — Vol. 42, No. 4

Feature Articles

FILMING THE DANNY THOMAS SHOW — Herb A. Lightman — 218
CINEMATOGRAPHY AIDS RESEARCH AT DOUGLAS AIRCRAFT CO. — Darrin Scot — 220
THE TECHNIQUES OF CREATIVE FILM EDITING (Part 3) — 222
HOW CLOSE BASEBALL PLAYS ARE DECIDED BY CINEMATOGRAPHY — Charles Casey — 227
1960 "OSCAR" NOMINEES FOR CINEMATOGRAPHY — 228
MOTION PICTURE SET LIGHTING—An Interview With Arthur C. Miller, ASC — 232
DO-IT-YOURSELF SALES PROMOTION FILMS IN 8MM WITH SOUND — Alvin D. Roe — 234
SEEKING A MARKET FOR YOUR FILMS? — Charlie See — 236

Departments

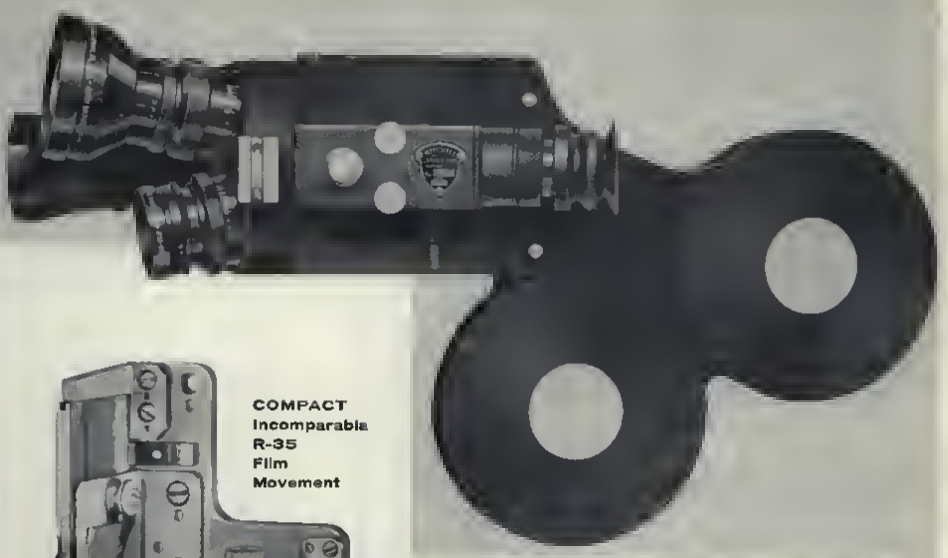
INDUSTRY NEWS — 196
WHAT'S NEW IN EQUIPMENT, ACCESSORIES, SERVICES — 198
LITERATURE—Booklets, Catalogs and Brochures — 202
PHOTOGRAPHIC ASSIGNMENTS — Marion Hutchins — 204
QUESTIONS & ANSWERS — Walter Strenge, ASC — 212
OUT OF THE BOOK — 246

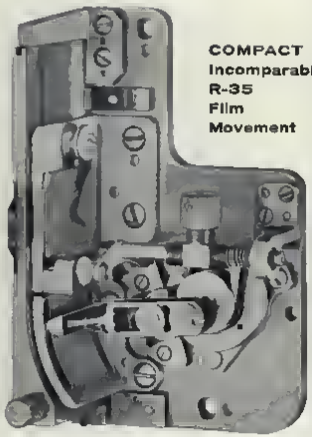
AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. SUBSCRIPTION: United States and Canada, $4.00 per year, Foreign, including Pan American Union, $5.00 per year. Single copies 35 cents, back numbers 45 cents; foreign single copies, 45 cents, back numbers, 55 cents. Advertising rates on application. Copyright 1961 by A. S. C. Agency, Inc. Second-class postage paid at Los Angeles, California.

NEW MITCHELL R-35

...only truly professional portable reflex motion picture camera

Designed to cover the widest range of professional motion picture applications, the all new Mitchell R-35 reflex camera offers remarkable versatility to exceed the requirements of most discriminating cinematographers. Streamlined design is combined for the first time with the full range of professional features by Mitchell—world's leading source of truly professional motion picture cameras and equipment.





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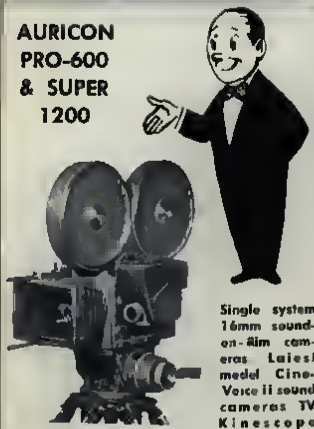

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INDUSTRY NEWS

News briefs of industry activities, products and progress

MGM To Use Ultra-Panavision For Cinerama Productions

The versatile Panavision system of motion picture photography, which was described in an earlier issue of *American Cinematographer* as readily adaptable to Cinerama-type film production, will be utilized by MGM for its forthcoming Cinerama productions. The system, developed by Panavision's Robert Gottschalk, will be integrated with the three-camera, three-projector system of Cinerama in the four MGM-Cinerama co-productions, it is reported.

The Ultra-Panavision system includes also, a method for employing a single camera and a single projector to take and project motion pictures in a 360-degree periphery. MGM is said to be planning to integrate this method with the Cinerama system.

* * *

Production of TV Films In Hollywood On Increase

Close to 3000 TV films in more than 100 different series will be produced this year, according to Richard W. Jencks, president of the Alliance of Television Producers, who revealed that approximately 90% of all evening programming on the TV networks now consists of TV films made in Hollywood.

The quality of TV films has all but swept live programming off the home screen, Jencks told a Hollywood Chamber of Commerce audience, and added that there is little competition to be expected from foreign producers of TV films. Hollywood's production efficiency is much superior to that of any foreign competitor, he pointed out.

* * *

Work To Start on Museum Film Archives

Eastman Kodak Company will donate raw stock and Consolidated Film Industries the laboratory work to restore and preserve memorable films made since the birth of the motion picture industry for the Hollywood Motion Picture and Television Museum. This was disclosed last month by Sidney P. Solow, CFI vice-president and general manager, who also is the chairman of the Archives Committee of the Museum. The plan includes an arrangement with the Museum of Modern Art Film Library whereby its historical films will be reprocessed and restored through grants of raw stock by Eastman and the lab work of Consolidated.

* * *

British Union Head Discusses Exchange Plan with IA Union

George Elvin, executive secretary of the Association of Cinematographic Technicians, British film union, was in Hollywood last month to discuss with IATSE head Richard Walsh and Herbert Aller, business manager of Hollywood's Local 659, plans for exchange of cameramen, art directors and film editors between England and the U.S. Plan, if it materializes, would enable a Hollywood cameraman for example to work in English studios, or a British cameraman to work on a picture in the U.S. unhampered by any union restrictions.

* * *

Harry J. Wild Passes

Harry J. Wild, ASC, a director of photography for Four Star Productions in Hollywood, died February 24th at his home in West Hollywood. In recent months he had been active almost exclusively in the production of television films. Earlier, he had been director of photography on all Jane Russell's pictures produced at RKO.

* * *

8mm Sound Pictures

A significant professional application of 8mm sound on-film equipment for production of sales promotion films is announced by Color-Sound, Inc., New York. Company is now making three pilot films in 8mm sound for exhibition in store windows.

* * *

Miscellaney: Several papers on space-age aerial photography will be presented May 22-26 at the annual convention of Society of Photographic Scientists and Engineers in Binghamton, N. Y. . . . *Jack West* has been named manager of General Film Laboratories Central Division in Kansas City, Mo. . . . *John A. Somers* has been appointed executive vice-president of Bach-Auricon, Inc., Los Angeles. •

Which Ansco film is best for your next production ?

Want superb color accuracy, total processing compatibility and wider exposure latitude in every phase of your work? One of these great Ansco emulsions will give you all three no matter what the job at hand. Process both camera and duplicating films in the same solutions for the greatest time and cost savings plus improved uniformity. Now choose the film best for your next production:

Anscochrome Type 242 (3200K)—Anscochrome Professional Type 242 is a 16mm reversal film balanced for exposure to tungsten illumination. It is primarily designed as a camera original film, with lower contrast for subsequent release printing on duplicating stock. Type 242 has very fine grain, a high resolving power, exceptionally accurate color and a tungsten film speed of 25. Anscochrome Type 242 is also used for direct projection in missile tracking and scientific photography where its lower contrast and accurate color rendition are of advantage. Type 242 originals produce the highest possible color quality, sharpness and gradation in your release prints.

Anscochrome® Film Daylight and Tungsten Types—Exceptional color fidelity, one stop or better exposure latitude, and processing flexibility make 16mm Anscochrome film the standard for all normal lighting conditions. Anscochrome discriminates between subtle color differences yet yields images of high saturation and clarity. It produces rich, full blacks and crisp highlight areas for good definition. The normal 32 speed of Anscochrome film may be boosted to 64 through forced processing with a minimum of sacrifice in quality. Anscochrome film offers better, more accurate color even under difficult conditions. It is the basic color film for direct projection use.

Super Anscochrome® Film Daylight and Tungsten Types—Super Anscochrome film combines the color accuracy of Anscochrome with a higher film speed of 100. It records detail under poor lighting conditions. Super Anscochrome is frequently used in high speed cameras. Its higher film speed reduces lighting requirements allowing shorter exposure times for less image smear and smaller apertures for greater depth of field. Its excellent processing latitude permits forcing to a speed of 200 with acceptable results. Super Anscochrome film is slightly higher in contrast than Anscochroma. This permits clean color separation in available light or photography of distant objects where atmospheric conditions reduce subject contrast.

Anscochrome Duplicating Films—Anscochrome 16mm, 35mm, and 70mm duplicating films are used for printing from reversal color originals. They offer full Anscochrome processing compatibility, with fine grain, sharper prints, and high color saturation with superior curve conformity for accurate color values. Contrast values are ideally suited for motion picture duplication. Anscochrome Type Duplicating Films save time and costs with their complete processing compatibility in regular Anscochrome chemicals. For further information on these fine films write: Ansco, Professional Motion Picture Dept., Binghamton, New York.

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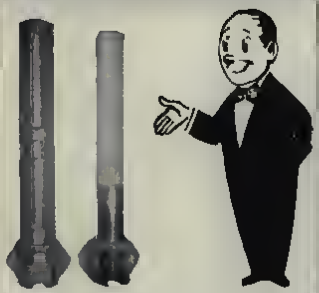

CAMART CORE DISPENSER

★ Adjustable for 16 or 35mm cores
★ Keeps film cores where you need them
★ Light aluminum construction.

Aluminum Cores

18"	$ 9.50
24"	11.50
24" Dispenser for 50' or 100 plastic reels	24.00

BROR-400 16mm film developing machine

★Air-compressor built in
★Two-stage air squeegee in final wash
★Spray combination wash
★Bottom drains in all tanks
★Needle bearing supported top drive shafts, friction clutch drive
★Strip heaters in dry box filtered forced air with exhaust duct outlet
★Stainless steel heliarc welded tanks
★ Operates at 600' per hour

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★For reversal and color write for quotations. Send for descriptive literature

ECCO MODEL D SPEEDROLL APPLICATOR

★ Cleans, conditions, lubricates your film in one easy operation
★ Non - inflammable, eliminates waxing, absolutely safe

★ Ecco Model D Applicator	$33.00
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WHAT'S NEW

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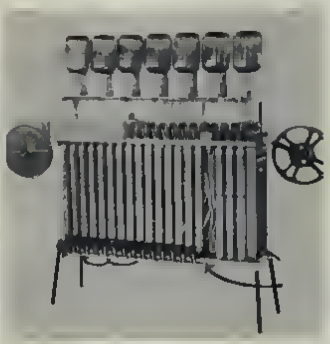


Autematic Film Processers

Fulton Productions, Inc., Tulare, Calif, announces new automatic continuous film processors for industrial, TV news, and microfilm applications. The units are daylight operated, completely portable and operate from any 115-volt outlet. Water and drain connections use ¾" garden hose, eliminating installation costs.

Models are available for negative, negative/positive, reversal, Ektachrome and Anscochrome, as well as all microfilm emulsions. They accept 16, 35, 70, 105, 16/35 or 35/70 films or film combinations.

As little as 16 ounces of working solution per tank are required, with automatic replenishment Unique cascade reverse-flow wash tanks use a total of 1 to 2 gallons of water per minute for complete washing All processors are equipped with complete temperature control systems A thermostatically controlled water mixing valve is incorporated to blend hot and cold water to the proper temperature This water is passed into the solution heat exchangers, and then into the wash tanks.

The 1200-foot daylight film magazine uses a new type "maze" light-trap allowing passage of staples or tape. Provision is also made for adaptor plates so that the camera magazine may be used. Other features include air squeegee, electrostatic filter for drying air, and continuous turbulation of all chemical solutions.

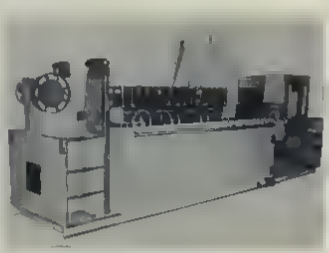
Quick-change, inexpensive motors allow instant selection of film processing speeds from 2 to 16 feet per minute to meet all processing requirements

Prices start at $1,875 for the standard 16mm, 8-feet per-minute speed black-and-white reversal model A brochure with complete technical details is available on request from Fulton Productions, Inc., P.O. Box 980, Tulare, Calif.

HFC Hot Splicers

Hollywood Film Co., 956 No. Seward St., Hollywood 38, Calif., announces a complete line of hot splicers in custom built cases. The cases are sturdy, attractive and functional. Each case not only offers protection to the hot splicer when not in use, but contains one pint of film cement, one pint of acetone and one hundred emulsion scraping blades.

Models are available for 8mm and 16mm, 70mm for Military perforations #1, 70 mm for military perforations #2, 65mm, combination splicer for 35mm or 70mm, combination splicer for 16-35/32-35-65 or 70mm, and combination splicer for 16-35/32-35mm All models are available for immediate delivery.



Color Film Processer

A new combination 8mm/16mm and 35mm color film processor is announced by Houston Fearless Corp., 11805 West Olympic Blvd., Los Angeles 64, Calif. The compact Duplex Model 312 automatically processes 8mm/16mm at 720 feet per hour, and 35mm Kodachrome or other compatible color film at 240 feet per hour.

Two separate drive systems on opposite sides of the machine—one for 8mm/16mm, the other for 35mm—utilize a common set of solution, rinse and wash tanks plus dry box Film tension is eliminated and automatic shut-off switch is provided.

New Motor For Arriflex 35

The Arriflex Corporation of America, 257 Park Ave. South, New York

Continued on Page 200

Troubled by out-of-focus pictures?

Troubled by emulsion pile-up in your camera gate?

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CINE VOICE II, takes 100 ft. Runs 2¾ min $998.50 & up

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☐ 66 ft. rolls — transparent 16mm — double perforation (T16D) at $6.00
☐ 20 ft. rolls — transparent 35mm (T35) at $4.04
☐ 66 ft. rolls — transparent 35mm (T35) at $11.00
☐ 66 ft. rolls — white opaque — 16mm — magnetic film only (O-16) at $6.00
☐ 66 ft. rolls — white opaque — 35mm (O-35) at $11.00
☐ ¼" splicing tape for magnetic tape ($4) at $.57
SPECIAL INTRODUCTORY KIT:
1 20' roll T16 ($2.20)
1 20' roll T35 (4.04)
F & B Film Repair & Butt Splice Block (19.95)
($26.16)

☐ Special Introductory Kits at only $14.50
Name
Address
City

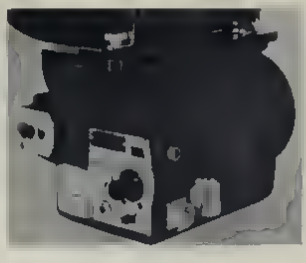
Continued from Page 198

WHAT'S NEW

10, N.Y., announces a new transistorized governor-controlled motor for the Arriflex 35. The circuitry of the new motor is such that only a relatively small current passes across the centrifugal switch of the governor mechanism. The heavy main current is controlled by the transistor. As a result, switch points last much longer, dependability is substantially increased, and speed regulation and stability are improved. Heat dissipation of the transistor is effected by the usual heat sink plus a forced-air stream. The new governor-controlled motor sells for $190.00, and is available through all Franchised Arriflex Dealers.

Instrumentation Cameras

Benson-Lehner Corp., 1860 Franklin St., Santa Monica, Calif., announces several new features for its models HS 70A 70mm range instrumentation camera. These include a register lock-pin, stroke adjustment lock, and hold-down locks on the movement and aperture plate. Pushbutton control has also been added to simplify calibration of the distance from the timing light to the frame being exposed. A safety interlock switch has been provided on the door to prevent the camera from operating during film loading, or if the door is not fully closed. Means of overriding the interlock are also provided.



Transistorized S.O.F.

S.O.S. Cinema Supply Corp., 602 West 52nd St., New York 19, N. Y., is now distributing nationally the Transist-O-Sound high-fidelity lightweight amplifier for use with Auricon 16mm cameras. It is available for either one- or two-channel operation, features a wide-range audio, and is licensed by RCA. The self-contained amplifier mounts beneath the camera. There are no unnecessary cables other than those required for AC power and mikes. The two-channel self-contained unit lists for $335.00; the one-channel in-camera unit (illustrated) lists for $550.00.

Imported Tripods

Mark III Tripods, a new imported line, is announced by Florman & Babb, Inc., 68 West 45th Street, New York, N. Y. These are medium-weight standard type tripods which will accommodate all friction or fluid-damped heads. Two models are available: the Standard, which weighs 9 lbs. and has a height range from 40 to 70 inches, and is priced at $49.50; and the Baby, which weighs 4½ lbs., has a height range from 20 to 37 inches, and sells for $47.50. Sturdy leather and Vinyl carrying cases are available for both models.

Lenses for 16, 35 and 70mm Cameras

Wollensak Optical Company now offers a complete line of lenses for motion picture photography of all kinds and all types of cameras, including those for instrumentation and documentary photography. Mirrotel Lenses having focal lengths from 20 to 200 inches, and a 20-60mm varifocus Raptar Zoom Lens for Vidicon TV and 16mm motion picture cameras. Literature on the complete line is available by addressing the company at Rochester 21, New York.

New Protect-A-Print Packaging

Flight Research, Inc., Richmond, Va., announces a new packaging of Protect-A-Print in convenient 100-foot lengths. Product is a specially treated film that cleans the gates of cameras, projectors and editing equipment when it is run through the instruments preceding a run of regular motion picture film. Result is safe removal of any dirt and film emulsion accumulation without use of instruments which might damage film gate surfaces. The new 100 foot length is designed to meet the specialized requirements of testing centers where many remotely operated cameras are in operation at one time. ■

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Yes	No	
☐	☐	Do you own a pan-head?
☐	☐	Do you own a 16mm camera?
☐	☐	Are you completely satisfied with the performance of your present pan-head?
☐	☐	Would you be interested in a fluid pan head that is the ultimate in BALANCED free floating action?
☐	☐	Is a variable tension drag control desirable?
☐	☐	Is a positive brake for any weight camera a must?
☐	☐	Is there a market for a fluid pan-head for an 8mm camera?
☐	☐	Is it important for you to be able to tilt the pan-head without disturbing the drag setting?
☐	☐	Is service-free performance an important factor?
☐	☐	Is $180 too high for a professional fluid panhead?

Thank you! In appreciation for completing this questionnaire we would like to send you a FREE professional "Scenario Script Pad." If you would like a copy of the results, please be sure to give us your name and address

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Literature

BOOKLETS • CATALOGS • BROCHURES

Traid Catalog

The Traid Line For '61 is title of compact catalog and price list of the wide range of equipment available from Traid Corporation, 17136 Ventura Blvd., Encino, Calif. In the 40-page 4" x 8½" booklet are illustrated and described a brief resume of the company's major products which are available "off the shelf." Included are 16mm and 35mm cameras, readers and projectors, wide angle lenses, tracking finders, film magazines, rapid film processors, etc., as related to specialized cinematographic work such as photo instrumentation, tracking, cinepulse, etc.

* * *

DuPont Film Data

A series of four specification sheets on DuPont Cronar motion picture films are available to professional motion picture film users from DuPont's Photo Products Department in Wilmington, Delaware, and the company's eight regional sales offices throughout the U.S.

Films covered are Type 136 Cronar fine grain Superior 2 negative, Type 131 Cronar high-speed rapid processing negative, Type 140 Cronar high contrast, fine gain negative, and Type 228 Cronar fine grain duplicating stock. All of these films are available in 16mm, 35mm, 70mm and Aerial widths, according to the spec sheets, which also indicate the type of perforations, roll lengths and the core and spool types available.

* * *

Facilities Brochure

Available free from Magnasync Corp., 5546 Satsuma Ave., North Hollywood, Calif., is a new 12-page 2-color 8½" x 11" brochure which illustrates and describes the Corporation's history, research activities and engineering and production facilities in the realm of magnetic recording systems and ground support systems for government agencies, industry, science, entertainment and education. A generalized proprietory product line is also illustrated.

* * *

Animation Equipment

A comprehensive two-color 6-page folder, 8½" x 11" in size, illustrating and describing the 1961 TEL-Animastand marketed by S.O.S. Cinema Supply Corp., New York, N. Y., is available free to producers and technicians engaged in professional film production. Detailed are fourteen salient features of the equipment which is manufactured by S.O.S. for all types of animation, trick photography, special effects, title making, enlarging, etc. Included is a price list of TEL-Animastands and related equipment and animating accessories.

* * *

Sound Effects Catalog

A 28-page catalog of Major sound effects records available from Thomas J. Valentino, Inc., is available free to film makers, radio stations, music stores, etc. The effects and music records listed are 10-inch double-face discs, lateral cut at 78 rpm—most of them recorded from life on tape then waxed. A considerable number of the recordings are royalty-free.

Also available is a 36-page catalog of Mood Music records. All mood music compositions are original—none in public domain.

* * *

Bureau of Standards Report

Research Highlights of the Nat'l Bureau of Standards, Annual Report 1960, is now available from U. S. Government Printing Office, Washn. 25, D.C. Price is 65 cents

* * *

Ferrania Films

Ferrania, Milan, Italy, a leading European manufacturer of motion picture films, has issued two comprehensive booklets which describe the company's products and how to process and print its 16mm and 35mm color film.

One is titled *Ferrania Cinematographic Material* and is a general catalog that gives specifications, general properties and composite charts showing the time-gamma and time-fog curves, log exposure, plus spectograms of the various Ferrania films, both black and white and color. The second booklet, titled *Ferrania Color Films For Professional Purposes* details the processing and printing steps required for the company's 16mm and 35mm color films. This booklet is highly educational in that it is amply illustrated with diagrams and charts. ■

Another GIANT Step Forward in

ANIMATION at F & B

In a short but hectic space of 3 years, F & B has emerged as one of the leading suppliers of animation equipment to suit every purpose F & B is deeply interested in the problems facing film producers, and all of these products have been developed only after much discussion, consultation and research. All stands are custom built and virtually every stand delivered has contained adaptations and modifications worked out to best meet the individual buyers requirements.

F & B Triplex ANIMATION STAND

The undisputed performance champion in the low-priced animation stand field.

Basic Stand

$995

It's an
- Animation Stand
- Filmstrip Stand
- Product Stage
- Tilting Stand

Compare these specifications!
- Zoom Range 1 30 Field
- Compound Camera Carriage 18" E-W, 12" N-S
- Tracking Accurate to 1/1000 of an inch

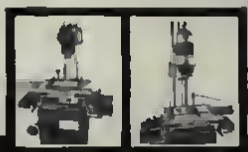
Weight 450 lbs. 14 Accessories Available

NEW INDUSTRIAL & AV ANIMATION STAND

A complete professional animation unit for the industrial or school studio in a package.

Specifications: 60" zoom—manual wheel 1/2" per rev—1-18 field—ground steel 2" columns—welded steel base. **Camera carriage** interchangeable for movies, stills, enlarging, copying, projection. Capacity 70 lbs. **Compound**—NSEW movement driven by lead screws with hand cranks—NS 14"—EW 18"—1/10" counters on all cranks. **Table Top**—18" x 24"—2 peg bars—24" movement, 1/20" scale 360° rotation with 1/2° scale. Spring-loaded platen with self-leveling water white glass. **Pentograph** — attached, right side up. **Underneath Light Box** —with 4 sockets—opal glass. **Shadowboard**—on single post swivel. **Top Light Bracket.**

Accessories available include motorized zoom, floating peg bars, dovetail camera mount, 4 x 5 copying and enlarging head.

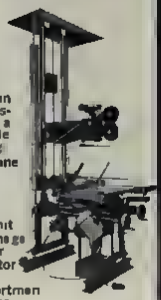


Write For Brochure

$2850

Complete unit as shown

PORTMAN ANIMATION STAND



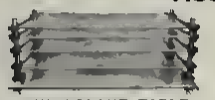
More than 45 accessories available including:
- Multi-Plane Table
- Traverse Peg Bar
- 12 Field Crawl Unit
- Aerial Image Projector
- Stop Motion Motor
- Acme Portman Rack-over, 16mm-35mm Camera

Our new streamlined design incorporates all the versatility of stands costing twice as much. Enthusiastic users from Australia to Venezuela endorse its rugged simplicity and efficiency.

Basic Stand $1595

WRITE FOR COMPLETE 20 PAGE CATALOG

ACCESSORIES



MULTI-PLANE TABLE

for 3 dimensional animation—4 levels optically flat water white glass—24" x 33" x 1/4". Each level independently adjustable—slides freely on rails. Stops provided on each level.

Price $570 —Tape on peg bars $12

TRAVERSE PEG BAR

allows cells to travel diagonally to table top peg tracks. Travel 16" or longer on special order. Ground steel track with hand crank & counters in 1/100 inch.

Price $195

DRAWING DISK

Aluminum with 3 top and bottom pegs—9" x 12" cutout with frosted glass insert, outside diameter 17"—rotates.

Also available with moveable pegs.

Price $45

UNDER-NEATH LIGHT BOX

5 light sockets, motorized blower, opal glass. Evenly illuminates a full 12 field.

Price $95

REGISTRATION PUNCH.

3 punches on 4" centers. Standard peg sizes—Acme or Signal Corps. Tool steel dies will punch thru 1/8" cardboard. Two locating pegs for continuous punching, positive back stop, adjustable side stop. Spring loaded lever handle. 9" x 12" mahogany shell.

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Other Accessories Available or Custom-built To Your Requirements:

- Zoom counters & scales
- Shadow boards
- Motorized zooms
- Lens mount
- Automatic follow-focus
- Dovetail camera mount
- Universal light brackets
- Slip lens units
- Multi plane table
- Artwork tables
- Copying camera
- Automatic field size light units
- Wipe & ripple units
- Peg bars
- Peg plates
- Peg inking boards
- Peg sets
- Compounds
- Table tops
- Peg tracks
- Rotary compound movement
- Double rotary movement
- Platens
- Pentograph
- Fixed floating pegs
- Floating unit
- Floating peg bar
- 12 field crawl unit
- Compound sub-bases
- Snap-on peg plate
- Electric platens
- Wide screen platen glass
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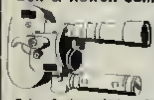

35mm movie camera, divergent 3 lens turret, 200 ft mag., 28v. DC motor, used—in working cond. Accepts Eyemo lenses—double pulldown claw movement in mag.

Extra Spring wind motor, $55
Extra 1000 ft. magazine, $110

Only $175

B & H Eyemo 35MM Model 71-K Camera

With 2" lens, att. winding handle, w/ large deluxe case. Good cond.

$110

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1" T2.5 Baltar ctd. L.N.	$95.00
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4" F2.9 Cinemat ctd. L. N.	15.00
10" F4.5 Wollensak ctd. L. N.	40.00
10" Obj. View Finders	4.50
Ratchet Winding Cranks	9.00
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Cine Special 100 Ft. Mags

NEW $250 (list. $425)

USED $70 Good Cond.

K-38 Fairchild Aircraft Camera

with 24" f6.0 Bausch & Lomb Aero Tessar lens, 28v motor mtsed, in working cond $65

24" f6 lens only $45.00

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with 7" f2.5 Aero Ektar lens, 24v motor, magazine. Used in working cond $80

7" f2.5 Aero Ektar lens only 55.00

Bell & Howell 16MM Editing Outfit

including Filmo 16mm viewer, pair large geared 2-speed rewinds, B & H 16mm splicer, rewind arms, custom built carrying case

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2 Hub 16mm Neumade sync, w/ctr—NEW	$80.00
Mitchell 35mm Std. Tripod—Used	85.00
12 gal. stainless steel tank 13" x 6" x 47"—NEW	85.00
Recordak "A" Micro Film Proj. 16-35, case	70.00
GSAP—16mm mag. camera w/lens NEW	18.00
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INTERCINEMA CORP.
P. O. Box 3452, New York 17, N. Y.

PHOTOGRAPHIC ASSIGNMENTS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

By MARION HUTCHINS

NOTE. Asterisks indicate television film productions.

AMERICAN INTERNATIONAL

MIGUEL F. MILA, "Atlantic Attack" (Color, Spain) with Broderick Crawford and Mario Cabre. Charles Haas, director

CASCADE STUDIO

ROY SEAWRIGHT, Industrial Film*; Commercials*

HENRY SHARP, ASC Commercials*.

JAMES VAN TREES, ASC
Completed his second year as director of photography of the "Debbie Gillis" TV film series last month. Show resumes shooting in May.

COLUMBIA STUDIOS

GERT ANDERSEN, ASC, "Donna Reed Show"*

JACK MARTA, "Route 66"*

CHARLES WELBORN, "Dennis the Menace"*

JOE BIROC, ASC, "The Expendables"*

JOHN WILDBOLT, "The Hellions" (Technirama & Technicolor, Irving Allen, Ltd.; shooting in S. Africa) with Richard Todd and Lionel Jeffries. Kenneth Annakin, director

GUISSEPPE ROTUNNO, "Two Enemies" (Dino de Laurentiis Prods.; shooting in Israel) with David Niven and Albert Sordi. Guy Hamilton, director

GORDON AVIL, ASC, "Underwater City" (Fantascope & Color, Neptune Prods.) with William Lundigan and Julie Adams. Frank McDonald, director

CARL GUTHRIE, ASC, "Everything's Ducky" with Mickey Rooney and Buddy Hackett. Don Taylor, director.

DESILU—Cahuenga

SID HICKOX, ASC, "The Andy Griffith Show"*

HENRY CRONJAGER, "One Happy Family"*

ROBERT DE GRASSE, ASC, "Angel"*, "Danny Thomas Show"*

DESILU—Culver City

CHARLES STRAUMER, "The Untouchables"*

LUCIEN ANDRIOT, ASC, "Guestward Ho"*

LOTHROP WORTH, ASC, "The Real McCoy's"*

DESILU—Gower

ROBERT PLANCK, ASC, "My Three Sons"*

ROBERT PITTACK, ASC, "Ann Sothern Show"*

LUCIEN ANDRIOT, ASC, "Harrigan and Son"*

HAL MOHR, ASC, "Barbara Stanwyck Show"*

GENERAL SERVICE STUDIOS

FRANK REDMAN, ASC, "Perry Mason"*

ROBERT MORENO, "Adventures of Ozzie and Harriet"*

MAURY GERTSMAN, ASC, "Mr. Ed"*

GOLDWYN STUDIOS

NORBERT BRODINE, ASC, EUGENE POLITO, "Loretta Young Show"*

INDEPENDENT

PAUL BEASON, "Once a Thief" (Hartford Prods. for UA, shooting in Madrid) with Rea Harrison and Rita Hayworth. George Marshall, director

ERNEST LASZLO, ASC, "Judgment at Nuremberg" (Stanley Kramer Prods. for UA release) with Spencer Tracy and Burt Lancaster. Stanley Kramer, director

BURNETT GUFFEY, ASC, "Birdman of Alcatraz" (Harold Hecht Prod. for UA release) with Burt Lancaster and Karl Malden. John Frankenheimer, director.

ROBERT KRASKER, "El Cid" (Super Technirama-70, Samuel Bronston Prods. with D.E.A.R.; Films for Allied Artists & J. Arthur Rank; shooting in Spain) with Charlton Heston and Sophia Loren. Anthony Mann, director.

MORRIS HARTZBAND, "The Defenders"*

ARTHUR ORNITZ, "The Young Doctors" (Drexel-Miller-Turman Prod. for UA; shooting in New York) with Fredric March and Ben Gazzara. Phil Karlson, director

MARIO MONTUORI, "Last Days of Sodom and Gomorrah" (Embassy Pictures-Titanus, Eastman color, shooting in Morocco) with Stewart Granger and Pier Angeli. Robert Aldrich, director

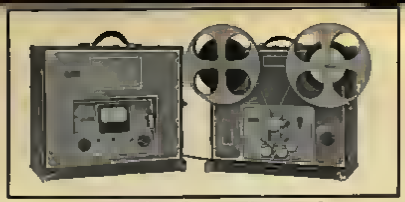
MILTON KRASNER, ASC
Directing the photography of "The Four Horsemen of the Apocalypse" in CinemaScope and color at MGM

METRO-GOLDWYN-MAYER

WILLIAM SPENCER, "Peter Gunn"*

ERWIN HILLIER, "A Matter of Who" (Walter Shenson-Milton Holmes Prod., shooting in London) with Terry Thomas and Sonja Ziemann. Don Chaffey, director.

Continued on Page 205



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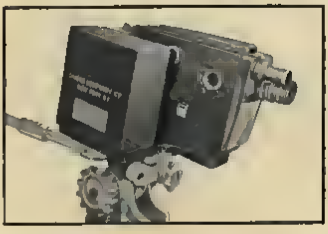
The most universally accepted sound system in America. Meets all SMPTE and Academy standards. A professional recorder for professionals. Available in split 16, 16, 17½ and 35mm.

CECO DITTY BAG
The ideal carry-all. Keeps necessary small equipment and tools accessible.

LIGHTWEIGHT FREZZO-LITE MODEL "500A"
Powered by latest development in batteries. Delivers 32 min. of high intensity light.

CECO 110 VOLT AC SYNCH-MOTOR FOR KODAK KTDD CAMERA
Precision motor drives camera at exact sound speed of 24 fps. Synch motors for other cameras available.



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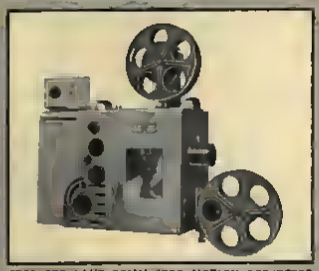

CECO RED LAKE 35MM STOP MOTION PROJECTOR
Variable speed remote control, forward and reverse 8 to 24 pps, 1000 ft capacity, positive single frame

CRAMER CONTINUOUS 16MM PROCESSOR
Compact, economical, portable. Can be operated in daylight. Fully automatic

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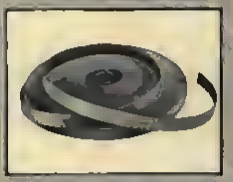
Collapsible, lightweight, ball bearing rubber casters
Jr weighs 15½ lbs; Sr 18 lbs



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A 10 ft. leader on your film cleans film path, removes emulsion build-up, eliminates film scratch, increases print life

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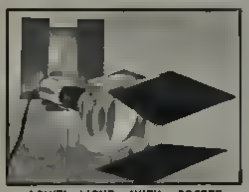

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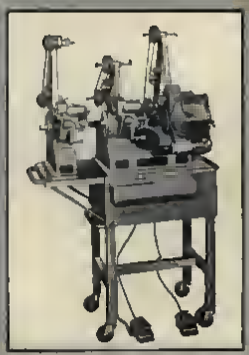

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Add a sound head to your Moviola 16mm or 35mm

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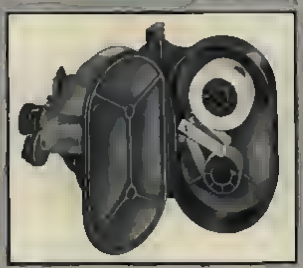

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Revolutionary technique develops and fixes film as you shoot Superior image quality Projects in seconds, fits all cameras.

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- ☐ CECO AURICON Cine-Voice Conversion
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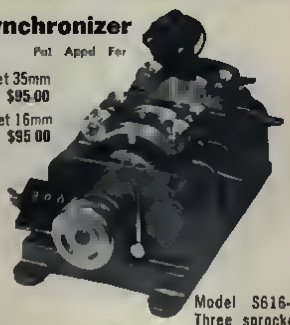

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Three sprocket
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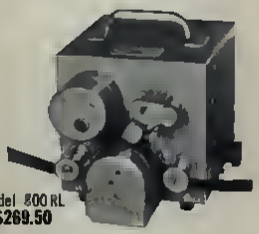

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PHOTOGRAPHIC ASSIGNMENTS

Continued from Page 204

JOSEPH LASHELLE, ASC, "The Honeymoon Machine" (Avon Prod., color) with Steve McQueen and Brigid Bazlen. Richard Thorpe, director.

FRANK PHILLIPS, "Beach Front"* (pilot)

PAUL IVANO, "The Jim Backus Show"*

GEORGE CLEMENS, ASC, "Twilight Zone"*

MILTON KRASNER, ASC, "Four Horsemen of the Apocalypse" (CinemaScope & Color, Julian Blaustein Prod.), with Glenn Ford and Ingrid Thulin. Vincente Minnelli, director.

ROBERT SURTEES, ASC, "Mutiny on the Bounty" (Ultra Panavision & Color, shooting in Tahiti, Arcola Prods.) with Marlon Brando and Trevor Howard. Lewis Milestone, director.

JOSEPH RUTTENBERG, ASC, "Ada" (CinemaScope & Color; Avon Prod.) with Susan Hayward and Dean Martin. Daniel Mann, director.

JOHN NICHOLAUS, "The Gunslingers"*

FRED MANDL, ASC, "The Tab Hunter Show"*

DATE DEVERMAN, "Asphalt Jungle"*

HARKNESS SMITH, "The Americans"*

JOSEPH BIROC, ASC
Photographed the pilot of "The Expendables," new one-hour TV film series to be produced by Screen Gems at Columbia Studios.

N.B.C.

ALAN STENSVOLD, ASC, "Dinah Shore Show"; "Groucho Marx Show", "Roy Rogers Show"

PARAMOUNT STUDIOS

WILLIAM SNYDER, ASC, "Bonanza"*

RUSSELL HARLAN, ASC, "Hatari!" (Howard Hawks Prod., Technicolor, shooting in Africa) with John Wayne and Gerard Blain. Howard Hawks, producer-director.

SHUNICHIRO NAKAO, "My Geisha" (Sasshiko Prod., Technicolor, shooting in Japan) with Shirley MacLaine and Yves Montand. Jack Cardiff, director.

LOYAL GRIGGS, ASC, "Deadlock" (Edmond O'Brien-Stanley Frazen-Tiger Prods.) with Jeffrey Hunter and Stella Stevens. Edmond O'Brien, producer-director.

WILLIAM MARGULIES, ASC, "The Outlaws"*

PARAMOUNT SUNSET STUDIOS

LESTER SHORR, ASC, "Pete and Gladys"*

REPUBLIC STUDIOS

WILFRID CLINE, ASC, "Stagecoach West"**

KEITH SMITH, "Michael Shayne"*

GILBERT WARRENTON, ASC, GEORGE DISKANT, ASC, "The Law and Mr. Jones"*

KIT CARSON, "Peter Loves Mary"*

CARL GUTHRIE, ASC, CHARLES BURKE, "The Tom Ewell Show"*

HOWARD SCHWARTZ, "Robert Taylor Detectives"*

Continued on Page 253

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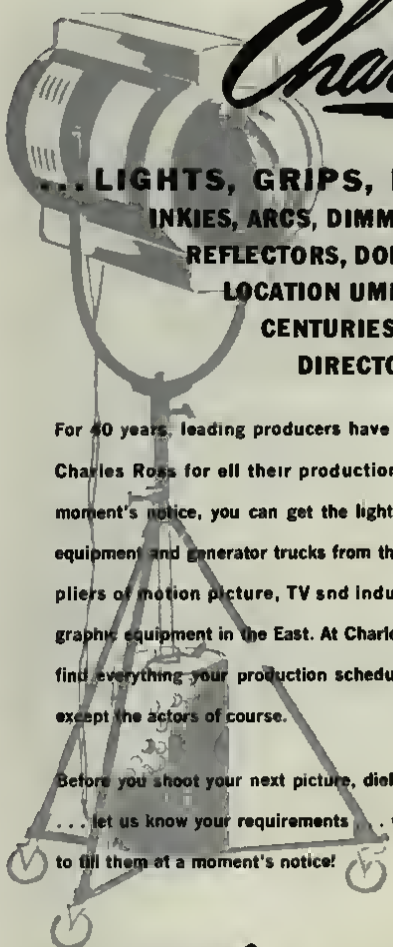

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WALTER STRENGE'S

QUESTIONS & ANSWERS

Need advice on a picture making problem? Your questions are invited and will be answered by mail. Questions and answers considered of general interest will appear in this column each month.

Q Referring to the recent article "Special Effects Without Mattes," please tell me what precautions are taken in this method to prevent top lighting from swamping projection onto the rear screen; also removal of the "hot spot" — i.e., coming from the back?—*J. P. Chapman, Dorset, England.*

Answer: No precautions are necessary because as no rear projection screen is used there can be no "hot spot," according to Francis Lee, co-author of the article. The rear projected image, Lee explains, passes through a set of large double-plano convex condensing lenses 9" by 12" in size, and which are placed directly beneath a panel of clear glass set at the table top or compound level.

The projected image is in focus at the table top level. Here it becomes *aerial*, that is, suspended in air—but nevertheless visible to the camera lens above it. The condenser lenses distribute the light from the projector evenly across the field, thereby eliminating any "hot spot."

The animator or camera operator may see the "aerial image" either by sighting through the lens of the camera or by switching off the top lights and room lights and placing a sheet of translucent paper or ground glass upon the clear glass panel immediately above the condenser lenses.

Q I own a Bolex H-16 Rex motion picture camera. At 24 fps, the shutter speed is rated at 1/60 of a second.

When I set my G-E PR-2 exposure meter to the ASA rating for daylight Kodachrome (10), and the fps at 24, the meter indicates a shutter speed of 1/50 of a second. A direct reading made with this meter setup results in underexposed shots.

When I set the shutter speed on the meter at 1/60 sec., I still do not get accurate exposures, and I have been forced to compensate ½ stop or more. My meter checks out with the Golden Crown, which is the newer model. Is there a more accurate meter I can use which, under normal conditions, would require no compensating? — *E.J.W., Livingston, N.J.*

Answer: If your meter checks out with the Golden Crown (assuming that it was accurately adjusted) then the next place to look for the trouble is in your camera. It is possible that it is running fast and that it is not actually delivering exposures of 1/60 sec. when it is set for this exposure. Therefore, why not have your camera checked out by the Paillard company in New York City, or by some reputable camera repair shop in your city.

Q What source of light is called the "key" light? Also, can you explain, roughly, how directors of photography go about setting up their lights for motion pictures?—*K.K.N., New York.*

Answer: The key light is considered

Continued on Page 252

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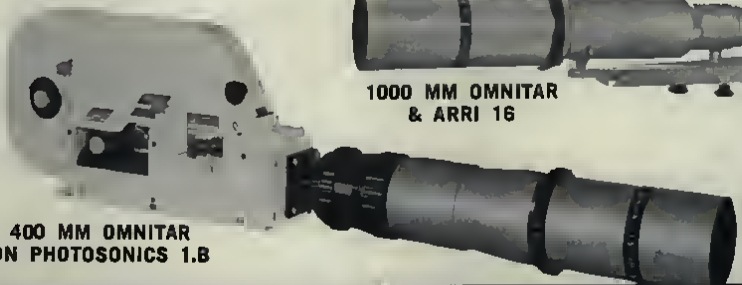

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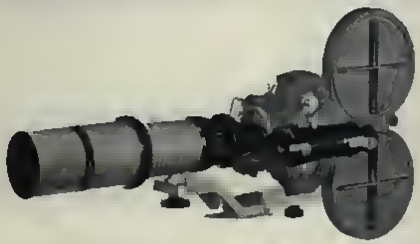

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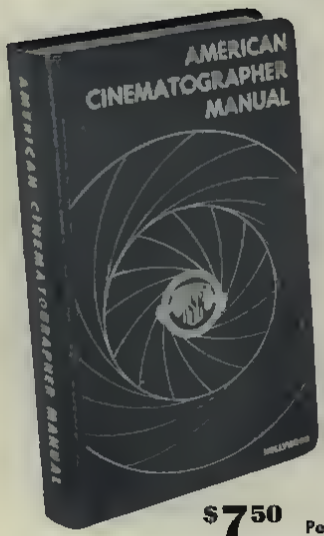

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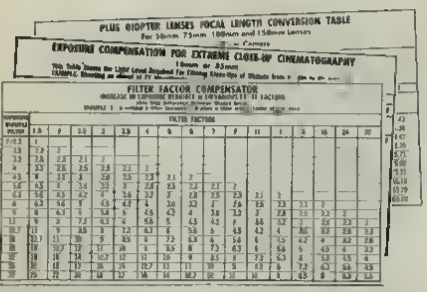
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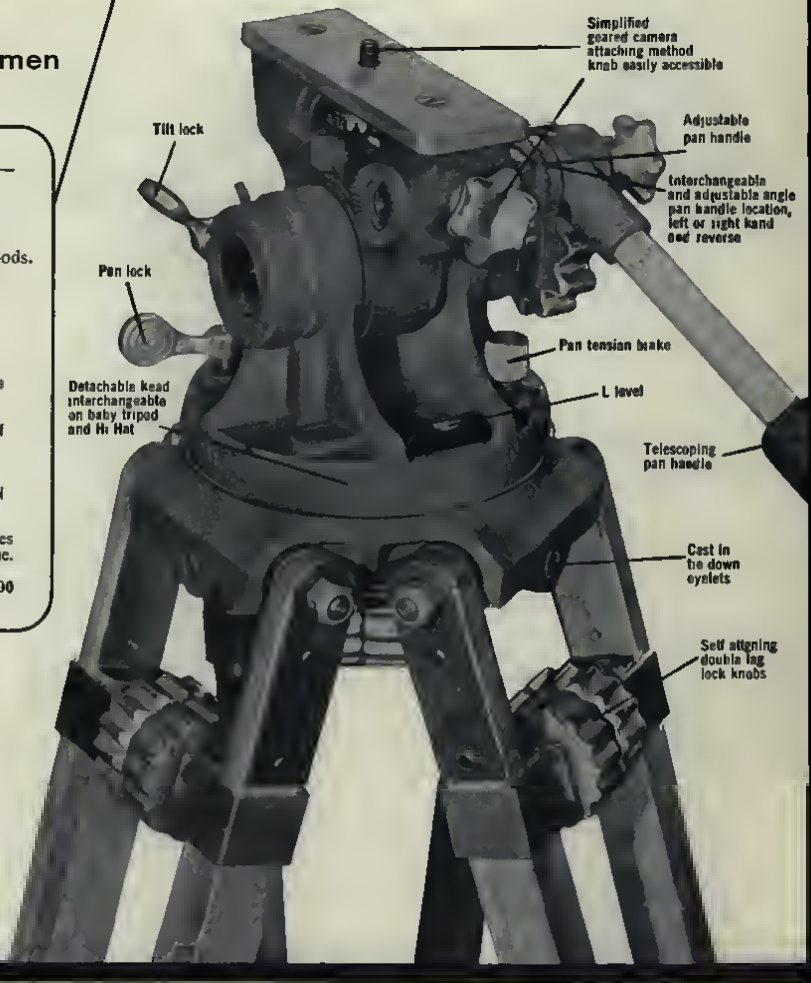
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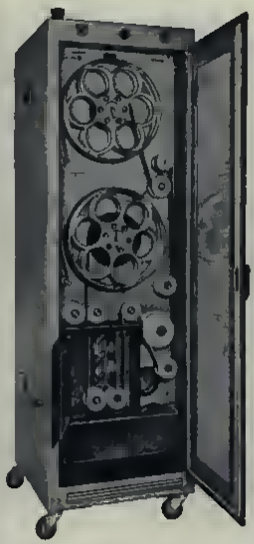

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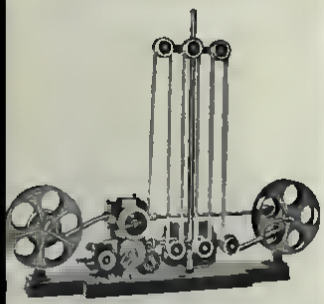

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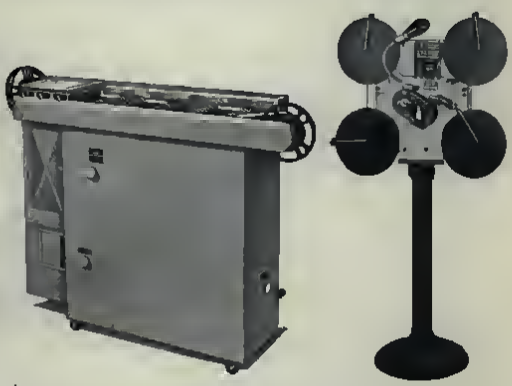

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QUALITY OF THE overhead lighting, used exclusively in filming the 'Danny Thomas Show,' is clearly evident here The key lighting fully accommodates the actors, no matter where they move on the set and serves also, at various times, as the cross or back light The action is photographed continuously with three dolly-mounted cameras—one in the center and one at either side.

Filming The Danny Thomas TV Show

By HERB A. LIGHTMAN

THE THREE-CAMERA method of filming a television show before a guest audience was first put to wide use by Desilu Productions when its initial TV series, "I Love Lucy," started shooting in September, 1951. Since then it has become an increasingly popular technique for filming TV comedy shows where lively audience reaction is important.

The "Danny Thomas Show," now in its eighth season on television, is one of the oldest and most successful series to utilize the three-camera method of photography. Its Director of Photography, Robert DeGrasse, ASC, has photographed every one of the show's 250 episodes, except the pilot.

DeGrasse brings to the show a vast experience of sound stage photography. Trained as an assistant cameraman at the old Universal Studios years ago, DeGrasse very soon became a No. 1 cameraman or, as they are known today, a director of pho-

tography. He has photographed such stars as Carole Lombard, Marlene Dietrich, Katharine Hepburn, Ginger Rogers, Cary Grant, Joan Fontaine, Shirley Temple, and Claudette Colbert, to name a few. An assignment to shoot the "Amos 'n Andy" series about eight years ago marked his debut as photographer of television films.

The three-camera audience show is filmed on what might be called a "theatre sound stage," with part of the stage adapted, by means of bleacher-type seating, to accommodate several hundred spectators whose reactions, laughter and applause are picked up by overhead microphones and recorded simultaneously with the show's dialogue on the sound track.

Method Saves Time

One of the major advantages of this type of video film production is a saving of time, e.g., while many hours are devoted to blocking the action, rehearsals and technical run-throughs, the actual filming of a half-hour episode takes only about an hour, allowing for reloading of cameras and wardrobe changes. What may seem like a tremendous economy is, of course, somewhat offset by the fact that three complete camera crews are used instead of the usual one.

But aside from such considerations as economy of time and money, there is one advantage which this system offers that more than compensates for whatever technical disadvantages may be inherent in the method.

"The main value of three-camera filming with a live audience is that it gives the actors an opportunity to get true audience reaction as they play. It aids tremendously in the quality of their performance," DeGrasse points out. "Also, they are inspired by this reaction so that they play for the audience and its spontaneous reaction. This is especially true of actors with a predominantly stage or vaudeville background. Danny Thomas, for example, readily feels the reaction of an audience; he doesn't like to work any other way. The method also offers greater freedom to the actors. The action is, of course, carefully blocked in advance, but in our show we don't attempt to confine any actor to exact marks because this would tend to produce a static result. We know that they'll invariably miss many of the floor marks while we're actually shooting, but we just have to make sure that at least one of the cameras is focused on the principal players at all times and that the set is properly lighted to permit acceptable photography of them wherever they may move."

ROBERT DeGRASSE, ASC
Has directed the photography of 250 episodes of "The Danny Thomas Show," and previously photographed much of the "Amos 'n Andy" TV series

Lighting, of course, is the main problem in this method of shooting. There is no chance to change or add lights once the show is before the cameras because the few breaks between sequences are very brief. Because of this all the lights must be carefully set in advance, including those on switches or dimmer control, and those which are only used in certain moments of the action.

Spotting In The Lights

During the technical rehearsals an attempt is made to spot in the lighting according to the way the action is blocked, but extra lights must always be added as a precaution against the actors ending up in the wrong areas during shooting.

One of the main lighting problems arises out of the fact that, with three mobile cameras continuously moving about on the stage, it is impossible to use any lighting equipment on the floor. Therefore, all of the light must come from lamps mounted overhead, and high enough so they will not show in the master shots. To help

Continued on Page 245

SOME OF THE OVERHEAD lights used to illuminate the sets are barely visible at top of picture. Quality of light they produce is more than adequate to accommodate the three Mitchell cameras that are continuously running, and dollying in and out or from side to side as the show progresses before a guest audience

DOUGLAS AIRCRAFT'S Film Services Department is staffed and equipped to produce a wide range of motion pictures. Here chief cinematographer Walt Tufts briefs camera assistant Robert Goodwin on shooting a sequence of scenes involving a Caravelle aircraft

PHOTOGRAPHING A COMPANY executive in course of oral presentation development program, in which motion pictures play an important part. Subject's performance and speech is recorded on film with Auricon Pro 600 camera, later screened for study

How cinematography contributes importantly in research, engineering and personnel training at

DOUGLAS AIRCRAFT COMPANY

By DARRIN SCOT

IT IS ONE HOUR UNTIL "blast-off" at White Sands Proving Ground, New Mexico. A Nike Zeus missile towers above the launching pad, poised for flight. Technicians clamber about the superstructure and pamper the missile with last-minute adjustments. A peculiar, low, almost tangible hum of excitement pervades the shimmering desert air.

A short distance away a camera crew of the Douglas Aircraft Film Services Department trains the lens of an Auricon sound camera on the company's Chief Project Engineer, who is in charge of the firing. He steps forward, speaking directly to the camera, and comments on the date, time, test conditions and the problems encountered thus far in the count down.

As he points out various details of the missile in the background, the camera's turret is switched to a telephoto lens to pick up these details in closeup. And all of what the engineer says is recorded on film along with the picture to provide the necessary technical data and informative comment relative to the missile launching for the enlightment of the engineers and others who later will study the film.

When this pre-launch briefing is concluded—and photographed—the area is cleared of all personnel and the camera crew withdraws to a safe tracking area to photograph the actual launching. Sometimes the camera, suitably protected, is set up within 200 feet of the searing blast of the rocket engines and operated by remote control. As the count-down reaches zero, the mechanical monster on the pad slowly roars skyward, spouting fire from its tail while leveling off in its thundering trajectory through

COMPLETELY EQUIPPED for any film production assignment is Film Services Department's mobile generator truck and equipment van. The camera dolly, lighting equipment, etc., which are carried in the van are comparable to requirements of a small studio

space. The camera now tracks the missile until it disappears from view, then the crew moves into the blockhouse data reduction room with its camera equipment where the engineer again steps before the camera to give a post-launch summary of the operation. He comments on the flight, the objectives fulfilled and the failures, if any.

The film is then unloaded from the camera and rushed to the airport at El Paso, where an awaiting plane speeds it to a laboratory in Hollywood. Here it is given immediate processing, a minimum of editing, pre-filmed titles and leaders are spliced in, and a print made. This is rushed to the engineering offices of Douglas Aircraft Company. In the company's projection room, the film provides company executives and engineers with a complete picture and sound report of the launching that took place at White Sands a hare 24 hours earlier.

Meanwhile other prints of the film are made by the laboratory and these are shipped by air to the heads of the various areas of command around the country as well as those overseas. Within 72 hours of the actual launching as many as 1500 key defense personnel in widely scattered areas of the world have viewed the ten-minute report film and formulated conclusions from what they observed. The cost of these films is less than $200.00 each.

The photographic procedure used in the production of such films is based on methods generally used in TV newsfilm production. It was developed by Bill Gibson, Douglas Aircraft's Manager of Film Communications while supervising the filming of missile tests at Cape Canaveral.

Speed is achieved by shooting the reports with 16mm cameras and film. Ektachrome film is used with an Auricon single-system sound camera. Optical instead of magnetic recording is used for the sound track because it permits quick, one-operation printing. A variable area track recorded at the Auricon sound exposure setting of 17 gives the best sound result, according to Gibson.

Although turning out the type of report films described above is an important part of the film pro-

Continued on Page 248

UNIQUE WEATHER-PROOF housing enables Douglas technicians to set up motion picture cameras close to missile launching pads or in widely scattered locations in the field to record various phases of a missile performance

TECHNICIAN SETS UP Bell & Howell camera in a weather-proof housing in a remote desert location. Pre-focused to cover one phase of the missile's movement, start and stop of camera will be remotely controlled by distant radio transmitter. An advantage is that all field cameras may be set up hours in advance of a blast-off or other test.

THE TECHNIQUES OF CREATIVE FILM EDITING

(Part 3)

Final steps in preparing the edited film that enable the laboratory to produce the answer print.

WE CONCLUDED the second article in this series last month by stating that after all the tangible alterations have been made, in the processing of editing the rough cut, the narration should then be read while the rough cut is projected; this will enable the director to determine if there is enough appropriate photography to cover each narrative thought.

Assuming that the workprint is pretty well edited at this point, and the effects are all marked, the next step is the actual recording of the narration

Up to this point, the workprint is still "loose" so that the photographic matter can still be trimmed easily to fit the final narrative track. This is a popular method; many directors prefer to work this way so the narrator can more easily concentrate on delivery and emphasis during the actual recording.

Pre-recording "Musts"

Before the recording session begins, there are still a couple of mechanical preparations to be made: 1) the narrator's script should be neatly typed, orderly, and double-spaced—and incorporate all final changes. Revisions should be typed instead of left as pencilled notations on margins. 2) each page should then be attached, top and bottom, to sheets of blotter paper so that extraneous paper noise will not be picked up during recording; otherwise the rustling of the undamped paper sheets will be difficult to control.

The narrator's cues should be marked on the narration script. These cue marks are usually slant lines in red pencil immediately ahead of all sections of copy that need to be cued to specific visual sections. Thus, the narrator may read to a mark and wait for the next cue before proceeding. (Incidentally, it is essential that a synchronous projector and tape recorder be used for this work).

Cueing The Narrator

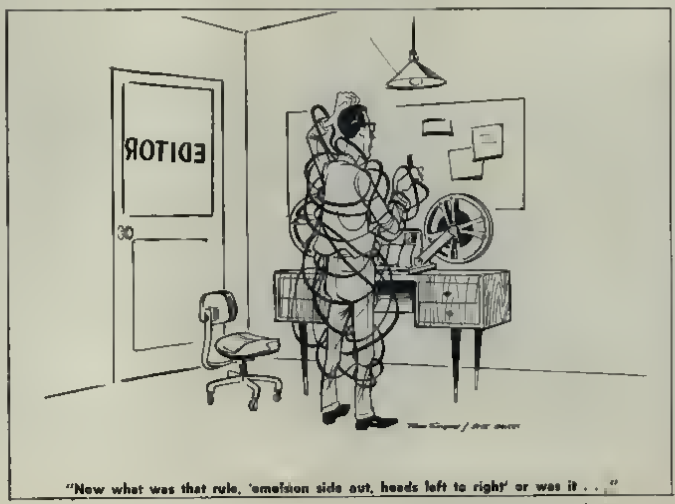
Once the recording session has begun, go all the way through and complete narration, giving the narrator his cues to read at the proper points in the projected workprint. Meantime, make notes of mispronounciations, wrong emphasis, long copy, noise—any places which are unsatisfactory. After the entire show is recorded, go back and re-do the defective areas. This can be done with aid of a stop watch and by re-recording over the bad paragraphs or on a fresh tape. Whichever way it is handled, do the correction immediately and listen carefully for voice match. The delay of even a few hours can result in a very noticeable change in the narrator's voice quality.

The Printed Track

Once the director is satisfied with the complete track, it should then be transferred from the quarter-inch tape to sprocketed 16mm magnetic film so both sound and picture films can be placed in the synchronizer for the final cutting. The final check of this interlock, whether on a screen, a Moviola, or on an editing table, represents the last time changes in the placement of the narration can be conveniently made. An interlock check will rarely show that no changes are needed. More commonly, sentences will need to be shifted one way or the other, or scenes shifted slightly, often extended or even replaced. If the changes are extensive, a final interlock check is advisable before preparing the sound effects and music tracks.

When music and sound effects are required, separate magnetic tracks are prepared for each—again using the final version of the edited workprint for exact scene and overall length. For

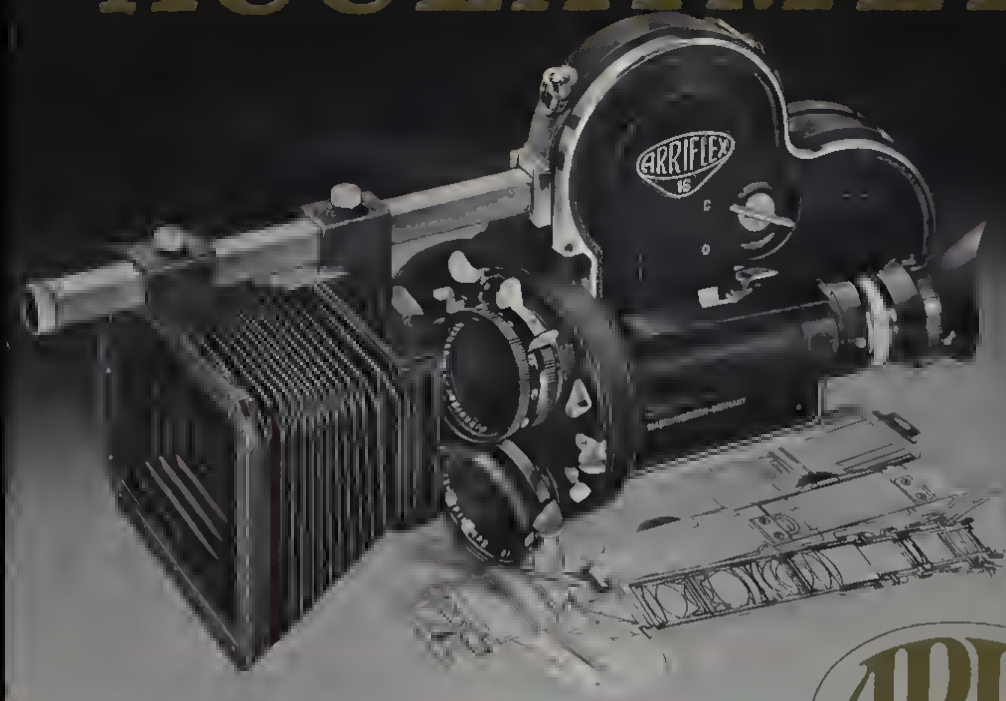
Continued on Page 244



"Now what was that rule, 'emulsion side out, heads left to right' or was it . . ."

Courtesy Industry Film Producer Magazine

ACCLAIMED!



ARRI

"The Arriflex 16, because of its versatility, ruggedness and reliability has become the most popular portable professional motion picture camera in America today"

(Quoted from a four-page editorial in "The American Cinematographer")

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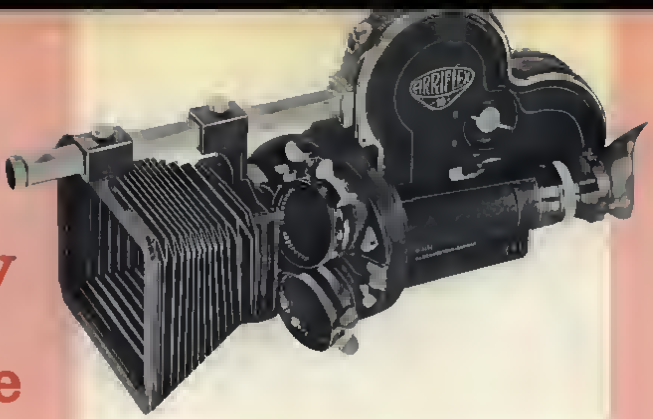

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The many hundreds of new purchases of the Arriflex 16 by industry, government, military services, and educational institutions are proof of the convincing superiority of this outstanding camera as factually stated in this insert. And the partial list of satisfied users is our most convincing recommendation. .

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TRUE MIRROR REFLEX SHUTTER
– not a beam splitting device – passes 100% of the light to film and viewing system intermittently.

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– even in poor light. 10X magnification, no parallax; no misframing; accurate, easy follow-focus.

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– with balanced rear pressure pad, side pressure rail, cross atages around aperture. This means rock-steady pictures, no film "breathing," 35mm-like film quality.

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– lets you use wide angle lens to 300mm telephoto without physical or optical interference.

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– electrically driven by light, compact, rechargeable batteries. Motor instantly interchangeable for other types – Governor Controlled. Synchronous and Animation.

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HAND-HELD FILMING
– all these features in a camera so light (only 6½ lbs), so formfitting, with its ingenious Contour Hand Grip, that steady, hand-held filming is easy.

versatility

It is a studio camera when you add the 400′ Magazine and the Synchronous Motor.

It is a sound camera when you put it in the Arriflex Blimp.

It is also an animation camera, a scientific laboratory camera, a medical camera, a cine-micrographic camera.

You can start with the hand camera, and as your requirements demand, add the special purpose accessories, and yet be able to convert it back to a hand camera in a few seconds — and without the use of even a screwdriver.

Because it is rugged and reliable

Here is a precision camera that will operate dependably under the most adverse conditions.

Walt Disney Productions, Inc , whose assignments lead their crews to the farthest corners of the globe, own more than 30 Arriflex 16's as of this date.

In the rough tropics, during the filming of "The African Lion," ace Disney wild-life photographer Al Milotte shot over 90,000 feet of color with one Arri 16.

Disney cameramen found the Arriflex 16 most reliable during the Navy North Pole Expedition.

And for the recent South Pole Expedition—1957-1958—where Disney Productions filmed "The Seven Cities of Antarctica," Arri 16's again were selected for major filming.

Because of factory service in the U.S.

A modern, fully equipped service center is maintained in New York City, manned by factory trained technicians. A complete stock of Arriflex parts is always on hand. Because Arriflex owners derive their income through the use of their cameras, service is handled on the promptest possible basis—in most instances within 24 hours.

Because of its reasonable price

You cannot buy another registration-pin 16mm camera unless you pay more than twice as much. If you "doctor up" an ordinary 16mm camera with accessories needed for professional use, it will cost you more than the Arriflex and you still won't have a professional camera, not to talk about the many exclusive Arriflex features.

Arriflex equipment is available on convenient long-term leasing plan with purchase option.

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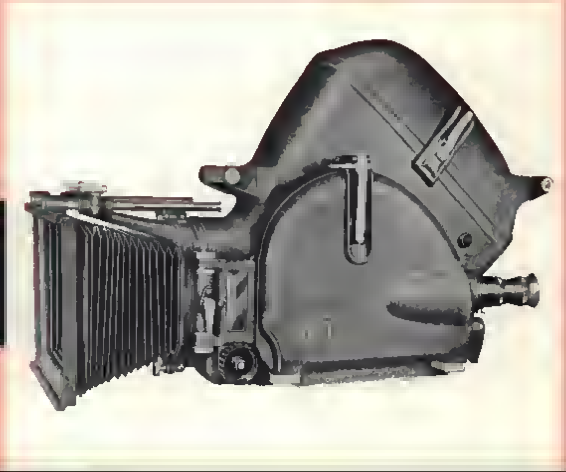

Hundreds of satisfied Arriflex customers throughout the nation are our best recommendation. Many companies are members of our "more than 6 Arriflexes" Club. Here is only a partial list of Arriflex users.

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Astronaut, Inc
Atomics International
Audubon Society
AVCO Corporation
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Baptist Foreign Mission Board
Barber-Greene Company
Bell Telephone Laboratories
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Brookhaven National Labs
Business Films
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California Institute of Technology
California State Polytechnic College
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Calvin Company
Dr Ramon Castroviejo
Cate and McGlone
Cavalcade Productions, Inc.
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Cleveland Clinic
Coleman Productions
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Colorado Dept of Highways
Commonwealth of Pennsylvania
Continental Productions Inc
Convair Astronautics
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General Electric Co—FP Div
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Grumman Aircraft Engr Corporation
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Harvard Productions Inc
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Hospital for Special Surgery
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Jamisson Machine Co.
Jet Propulsion Laboratory
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Kansas University Medical Center
Kelly Zehrndt-Kelly Inc
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Michigan State University
Midwest Film Studios
Missouri Conservation Commission
Mode Art Pictures Inc
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Motion Picture Production
MPO Productions
Museum of Science
National Aeronautics and Space Administration
National Bureau of Standards
National Inst of Health (Photographic Sec)
Nationwide Insurance
Natural History Museum N Y C
Nature Close-Ups
National Broadcasting Company
New Holland Machinery Company
N. Y. Bellevue Medical Center
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Phillips Petroleum Co
Pillsbury Mills Inc
Pilot Productions Inc
Plastic Contact Lens Co
Platt Productions
Producers' Film Studios
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RAD, Avco Manufacturing Corp
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Remington Rand
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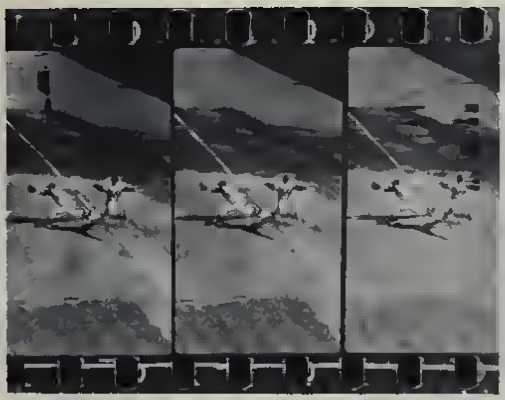
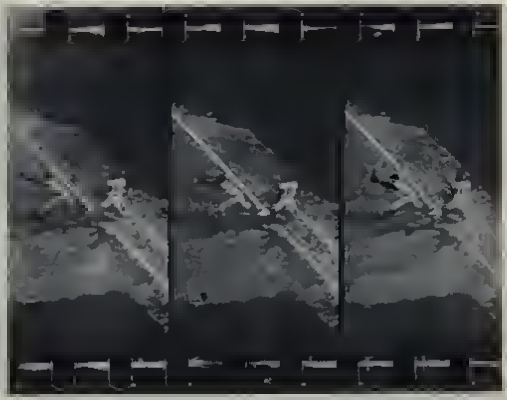


DAY—Close play in daytime game is recorded by high-speed 'photo-finish' movie camera mounted atop grandstand. Chip of critical frames is blown up to 11" x 14" and print delivered to officials 60 to 120 seconds after conclusion of disputed play



NIGHT—Despite reduced illumination, equally sharp detail is obtained by the camera in record of similar play in night game. Film is standard 35mm, travels horizontally in camera, with full area between sprocket holes utilized.

How Close Baseball Plays Are Decided By Cinematography

High-speed "photo-finish" cinemotagraphy provides officials with pictorial proof on disputed ploys in 60 seconds.

By CHARLES CASEY
General Mgr., Eye In The Sky Co., Chicago, Ill

THE SAME HIGH-SPEED cameras and processing techniques used to record horse-race finishes are now being applied successfully in photographing close plays in major-league hasehall games.

CHARLES CASEY

In less than two minutes after close plays were concluded in games played at Comiskey Park, Chicago, late last season, a sequence of still pictures from movie film was placed in officials' hands enahling them to adjudicate the play. The pictures clearly showed the position of the hall with relation to the receiver and position of the runner. High-speed photography provided indisputable proof of the play.

The photos were made hy a high-speed, 35mm motion picture camera mounted atop the grandstand. It was housed in a two-section booth, alongside rapid film processing facilities.

Test Proved Feasibility

This experiment was the brainchild of Bill Veeck, president of the Chicago White Sox. Veeck decided last August to test the procedure and potential of photographing close plays with a movie camera.

He turned to our firm, the Eye In The Sky Company, of Chicago, which has used high-speed photography to record horse and dog race finishes since 1934.

Eye In The Sky operates at 62 race tracks throughout the United States and Canada. We have developed "photo-finish" photography to the point where we can give a readahle negative to racing officials for their decision in 52 seconds.

Camera Mounted On Roof

It was Veeck's desire that we install a camera high on the roof of the grandstand at Comiskey Park to record plays at first and second hase.

We first designed a two-section hooth, 10 hy 6 feet in size. The camera section was 4x6 feet and the processing area 6x6 feet. Both were entirely light-proof, hecause the camera we used, a high-speed 35mm joh we designed for taking race track photo finishes, has its inner mechanism exposed.

The booth was constructed and set up on the roof of the grandstand over third base in time to film the final ten White Sox home games last year. These included five day and five night games.

Continued on Page 242

"THE APARTMENT"

Joseph LaShelle, ASC

LA SHELLE, who won an "Oscar" for the photography of "Laura" (1944), photographed "The Apartment" in black-and-white and Panavision The production is rich in realistic photographic treatment —mood lighting which transforms a drab apartment into a part-time love nest; artful lensing of city streets and a park at night; plus the tricky-to-light and-shoot sequences filmed inside a vast office having tremendous depth and an endless maze of desks and people Never intruding on the story, the photography smoothly advances the plot to point of climax where skillful lighting and camera handling add strong, visual punch lines.

Joseph LaShelle, ASC

1960 "OSCAR" NOMINEES

for Cinematography

A NOTABLE FACT about the ten motion pictures nominated for cinematography awards this year by members of the Academy of Motion Picture Arts and Sciences is that every one is distinguished by genuinely creative photography. Each of the ten—five of which are black-and-white and five in color—abundantly displays cinematographic techniques which have evolved to a new level of artistry and perfection. All of the films are a delight to watch on the screen.

While it is the production itself that is officially nominated for the various awards, including cinematography, it is to the Directors of Photography of the pictures selected for best photography in the final voting by the Academy to whom presentation of the "Oscar" award is made.

Continued on Page 230

"THE FACTS OF LIFE"

Charles B. Lang, Jr., ASC

IN PHOTOGRAPHING this black-and-white comedy production, Lang, who has worked mostly in color in recent years, demonstrates a rare talent for achieving wonderful results in the monochrome medium Mostly it is sparkling high-key photography complementing a lively romantic story Clean, crisp lighting enhances the beautiful sets and costumes. And there is some photographic magic, too, that makes a couple of middle-aged clowns seem almost like a pair of teenagers in love. Bob Hope and Lucille Ball, who star in this Panama & Frank Production, never looked better on the screen. "The Facts of Life" could earn for Lang his second "Oscar."

Charles B Lang, Jr., ASC

"INHERIT THE WIND"

Ernest Laszlo, ASC

THE BIG challenge for Ernest Laszlo, in photographing "Inherit The Wind" for Stanley Kramer, was the lengthy sequences inside a courtroom where existed every possible obstacle to conventional black-and-white cinematography. Laszlo employed dramatic camera angles and skillfully unobtrusive camera movement to keep the story flowing visually, and prevented it becoming static at any point. The camera prowls around the fringe of a group, moving as an absorbed spectator might, shifting position occasionally to gain a better view. As *The Hollywood Reporter*'s reviewer, Jim Powers, said: "Laszlo's photography is a silent but subtle ally of the story."

Ernest Laszlo, ASC

"PSYCHO"

John L. Russell, ASC

ALFRED HITCHCOCK, perhaps more than any other screen director, knows cinematography from A to Z, appreciates how imaginative photograpby can enhance his type of pictures. In John L. Russell he found a director of photography equal to any challenge he could conceive, one who could give the "Hitchcock touch" a new and unique pictorial embellishment. Laszlo's black-and-white photography of "Psycho" is somber, brooding—rife with suspense and impending violence. Predominantly low-key, it explodes frequently into glaring whiteness of horror. There are no obvious camera tricks, but the technique intensifies the impact of an ingenious, hard-hitting whodunit.

John L. Russell, ASC

"SONS AND LOVERS"

Freddie Francis, ASC

FREDDIE FRANCIS, a member of the British Society of Cinematographers, is the only foreign director of photography contending for an Academy Award this year. In his black-and-white photography of "Sons and Lovers," released in this country by 20th Century-Fox, he uniquely captures a visual paradox—the drabness of the English coal-country and, at the same time, its peculiar dramatic beauty. His camera treatment etches an image of a locale dreary to those who have already lived, but exciting to a young man reaching out for the first time to taste of the passions of life and love.

Freddie Francis, BSC

"THE ALAMO"

William H. Clothier

WILLIAM CLOTHIER used as many as five Todd-AO cameras at one time to photograph some of the action scenes for "Alamo," epic color production of the historic 13-day battle for Texas liberty. Filmed entirely on a Texas location in carefully reproduced and historically accurate "practical" sets with cramped, low-ceilinged rooms and numerous other photographic handicaps, the camera work nevertheless has great visual scope—especially in the climactic battle sequences where the multiple camera coverage projects the audience right into the midst of the thundering carnage.

Wm H Clothier

Of the eleven contenders for cinematography "Oscars" this year, four are previous Academy Award winners. Joseph LaShell, who filmed "The Apartment," won an Award in 1944 for the photography of "Laura." Charles Lang, Jr., who photographed "The Facts Of Life," received an Award in 1933 for "A Farewell To Arms." He also has numerous nominations to his credit. Sam Leavitt, who photographed "Exodus," won the 1958 "Oscar" for black-and-white photography for "The Defiant Ones." Should Joseph Ruttenberg win an "Oscar" this year for the photography of "Butterfield 8," it will give him five in all—the greatest number of "Oscars" won to date by any single Director of Photography. He is still in the lead in this respect with four Awards: "The Great Waltz" (1938), "Mrs. Miniver" (1942), "Somebody Up There Likes Me" (1956) and "Gigi" (1958).

"The Apartment" (Joseph LaShelle), "The Facts of Life" (Charles B. Lang, Jr.), "Inherit The Wind" (Ernest Laszlo), "Psycho" (John L. Russell), and "Spartacus" (Russell Metty) are essentially studio productions, filmed for the most part in and near Hollywood.

"The Alamo" (William Clothier) was filmed in Texas, "Butterfield 8" (Joseph Ruttenberg) mostly in New York, "Exodus" (Sam Leavitt) in Israel and on the island of Cyprus, and much of "Pepe" (Joe MacDonald) was shot in Mexico and Las Vegas,

Continued on Page 249

"BUTTERFIELD 8"

Joseph Ruttenberg, ASC

JOSEPH RUTTENBERG, the world's leading holder of "Oscar" awards for cinematography (4) is in the running again this year for the photography of "Butterfield 8." His lush, low-key color photography expertly delineates the after-dark New York world of a night-blooming-Cereus type modern-day courtesan. Precisely controlled lighting accurately conveys the atmosphere of intimate bistros in which one feels rather than sees the revelers present. Without taking anything away from Elizabeth Taylor for her performance as star of the picture, Joe Ruttenberg's artful lighting and photography contributes most substantially toward the provocative and realistic portrayal she achieves.

Joseph Ruttenburg, ASC

"EXODUS"

Sam Leavitt, ASC

SAM LEAVITT photographed "Exodus" in color and Super Panavision on actual locations in Israel and on the island of Cyprus. Not a single scene was shot in nor anywhere near a studio sound stage. Some of the location interiors were not much larger than a telephone booth, and he often had to make 360 degree pan shots (Director Preminger disdains a static camera) where it was next to impossible to light for them. Balancing interior and exterior light was a constant challenge. Almost continuous use was made of the moving camera for dramatic impact and to heighten phases of the continuity.

Sam Leavitt, ASC

"PEPE"

Joseph MacDonald, ASC

IN PHOTOGRAPHING "Pepe" in color and Panavision, Director of Photography Joseph MacDonald was called on to photograph just about everything from a dream ballet to a comic bullfight. Not since "Around The World In 80 Days" has a picture comprised such diversity of subject matter and locales. MacDonald's mobile and carefree camera follows the adventures of the film's appealing hero in a colorful, star-studded travelogue of Mexico, Las Vegas, and Hollywood. Imaginative pre-planning of the photography resulted in shots of the bullfight that are sheer delight, and there's an exotic accent to the many scenes filmed in Acapulco.

Joe MacDonald, ASC

"SPARTACUS"

Russell Metty, ASC

TO CAPTURE the full sweep and flashing action of "Spartacus," Director of Photography Russell Metty mounted Super Technirama cameras on camera cranes and dollies and kept them moving so skillfully that the audience finds itself constantly in the midst of what is happening without realizing that the camera is on wheels a good part of the time. The imaginative use of colored light in many of the scenes provides an effective contrast between the shabby world of the slave-gladiators and the elegance of the Roman patricians. Color quality of the photography is excellent throughout.

Russell Metty, ASC

MOTION PICTURE SET LIGHTING

. . . an interview with ARTHUR C. MILLER, ASC

WHEN, back in 1942, Arthur Miller received his first Academy Award for the photography of "How Green Was My Valley," it crowned an impressive record of achievements that began when he graduated from laboratory technician to "first" cameraman, and ultimately to his first important assignment—photographing the "Perils of Pauline" serials. He was for many years a top director of photography at 20th Century-Fox studio during which time he won three Academy Awards for pictures he photographed there.

UNLIKE WHEN SHOOTING out of doors where sunlight provides the necessary illumination, photographing indoors on the sound stage presents problems, the ready solution of which requires of the cinematographer a thorough knowledge of all set lighting implements and of the techniques for using them.

While almost every veteran director of photography in Hollywood has certain individual methods of lighting sets and photographing them, in general each follows procedures which are more or less basic for motion picture photography.

Actually, there is no one cut-and-dried procedure—nor could there be, any more than there could be for, say, painting a picture. For then there would be no individual creativity, no artistry.

As far as is known, no recognized director of photography has written a book on set lighting techniques. Much of what cinema students have learned about the art has been distilled from classroom lectures, the student workshop, from chapters on the subject in books dealing with film making, or from some of the technical articles in magazines.

The following interview with Arthur Miller, ASC, reveals some interesting and informative facts about the concepts and techniques of contemporary motion picture set lighting. Mr. Miller, now retired, is a past President of the American Society of Cinematographers and one of the few Hollywood directors of photography to win three or more Academy Awards for photographic achievement ("How Green Was My Valley," 1941; "Song of Bernadette," 1944; and "Anna and the King of Siam," 1946).

***Q*—Have the basic principles of motion picture set lighting changed to any great extent during recent years, particularly because of the marked swing toward wide-screen pictures?**

A—In general the fundamental principles remain the same. This is not to say that every cinematographer follows the same procedure or produces the same results. Besides the basic mechanics of cinematography, there is the all-important factor of individual creativity which, lacking it, few cinematographers ever attain more than ordinary results. The tools for lighting a set—the lamps—still are pretty much the same, except for the recently introduced lightweight units, such as Colortrans, Garnelites, etc.

***Q*—What do you consider the most important factor in the creation of good lighting for motion picture photography?**

A—I believe there are two important factors: 1. plenty of experience, and 2. an education—if not some practical experience—in portraiture. Only through extensive experience working with set lamps and studying their effects on the screen can a cinematographer really use set lighting intelligently. Knowledge of portraiture and especially of artistic portrait lighting is essential to achieve the best pictorial results in motion picture closeups. Some of Hollywood's best cinematographers began as portrait photographers many years ago.

***Q*—What is the first thing that a director of photography does in preparing to light the sets for a new production?**

A—Well, to start with, he is given the script to read. As he reads it he visualizes the lighting and photographic treatment he will give the story. He looks for scenes to which he can give a certain photographic impact to motivate the story at that point or to point up the mood, and he makes special note of this. Following a thorough study of the script, he formulates a plan of lighting and photography for the entire picture. Thus, no matter where the director starts to shoot—be it in the middle of the story or the last scene first, as is often the case—he can proceed with the lighting knowing that it will be in harmony with that for

the rest of the picture.

Q—To what extent, if any, does the type of story set the lighting style or approach?

A—The story has everything to do with it. Actually, almost every screen story calls for some special lighting or photographic treatment; sometimes the director of photography gets an inspiration for a new and different lighting approach. Sometimes a director or producer will specify "low key" treatment for a production when what he actually wants is the cameraman to work with a minimum of lights as a matter of economy. But low-key lighting doesn't necessarily mean shooting with fewer lights; it certainly doesn't mean shooting with the least amount of lighting equipment in order to reduce production costs.

Q—How would you define low-key lighting and high-key lighting?

A—In my experience, the terms "low key lighting" and "high key lighting" have meant many things to many people. I am sure that nowhere in the literature are these two terms adequately defined. We might properly say that high key lighting is stark and brilliant throughout the set, with a minimum of shadows; and that low-key lighting is just the opposite — a maximum of shadow or dark area in the scene with high-lighted areas in minority. But what we term low-key lighting here might be termed "effect lighting" by another cinematographer. And so it goes.

It is generally considered, however, that a set lit in high key is one in which the entire set is brightly lit. An example is what many in the industry have come to term "Childs' restaurant" lighting. This famous New York restaurant long has been noted for its brilliant interior illumination and it is this type of lighting that is often applied where high-key lighting is desired in a scene. This, for black-and-white photography, of course. In color photography, some cinematographers will pour 800 foot candles of light into the set and stop down the lens for the desired high-key effect. Before set lighting for motion pictures became the serious artistic endeavor that it is today, almost all high comedy pictures and musicals were photographed in high key. One thing, however, that high key does *not* mean is an over-exposed negative.

Low-key lighting is generally specified for some romantic scenes and for certain scenes in mystery and horror pictures where shadows and particularly a preponderance of shaded area in the scene enhances the somber pictorial effect or mood called for in the script. Some examples are: a scene in which two lovers are seated in a darkened room before a fireplace; a bedroom scene with moonlight filtering through a curtained window; a thief crouched before a safe and using a flashlight for illumination, etc. Some cinematographers, however, would insist these are examples of "effect lighting," although certainly the overall scene would have a general low-key aspect.

Most photoplays filmed today include both high- and low-key scenes which are properly related and intelligently intercut to impart the desired mood or tempo in a picture.

Q—What, if anything is done in the way of special treatment of the negative by the laboratory to contribute to low- or high-key effects in cinematography?

A—Properly photographed, either type scene requires no special attention by the laboratory in this respect. To achieve a proper low-key effect—the quality desired in a low-key romantic scene, for example—it is necessary to produce a negative on the thin side. I don't mean one underexposed, but thin in density and well balanced. Negatives of scenes lit in high key, on the other hand, are *full* negatives. Properly, both the high- and the low-key negatives are good negatives. Neither is over- or under-exposed. It depends on the effect you want as to where you place the density in the scene and therefore the negative; you control this by exposure.

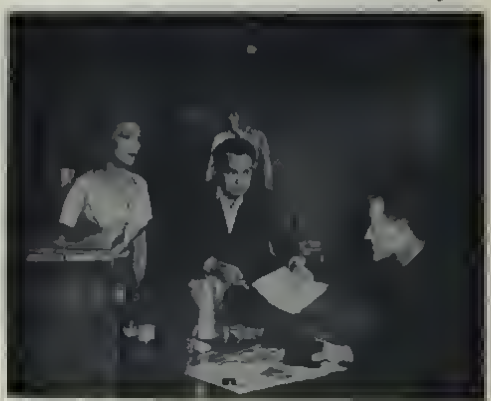
Q—Directors of Photography frequently refer to lighting ratios. Just what is meant by this, and what are considered normal lighting ratios?

A—The lighting ratio is the relationship of the key light, *plus the fill light*, to the fill light alone. It is important to compute the ratio in this manner since the brightest area of the scene or subject is that where the rays of the key light and the fill light are superimposed. Where the key light is twice as strong in intensity as the fill light, the area illuminated by both sources receives *three* units of light—two from the key and one from the fill—producing a lighting ratio of three-to-one.

Now while this formulary tells us the lighting ratio, it

Continued on Page 244

HIGH-KEY lighting is exemplified in this scene from a Hollywood production. Here the high-key illumination is generally uniform throughout the set with subtle shading on upper areas of walls.



LOW KEY LIGHTING in this scene compliments mood of both the story and the setting—a dingy warehouse where gangster mob is headquartered. Key lighting is artfully directed on all players.

Do-It-Yourself Sales Promotion Films In 8mm With Sound

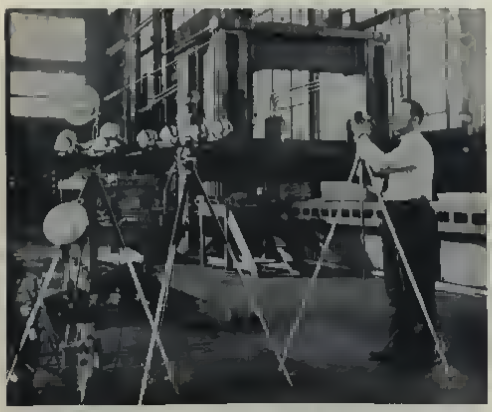
How two machinery manufacturing executives increased company sales with a do-it-yourself film making program. Their 8mm sound films effectively sell by sight and sound in the absence of product demonstrations.

By ALVIN D. ROE

MAKING 8MM sound sales-promotion movies of huge, special equipment, often not yet in existence, is the recent accomplishment of two young executives of the Morton Manufacturing Company in Muskegon Heights, Michigan.

Using a combination of animated models, actual machines, 35mm slides given the illusion of motion, realistic sound effects, plus other ideas picked up along the way, Don and Robert Morton, brothers, have completed several 8mm films which have proved highly effective sales aids.

Certainly it would be hard to find a better example for business with a greater need for material of this type. In its 100,000 square foot plant, Morton Manufacturing produces special machinery too large even to be displayed at machine tool shows.



THE LIGHTING equipment Don Morton uses in photographing the construction phases of a piece of heavy-duty equipment, is as light and portable as the lightweight 8mm camera used to photograph it. Here conventional bar-lights equipped with Reflector floods plus a couple of clamp-on units supply the necessary illumination.

VERY OFTEN the equipment or machinery, for which an 8mm sound film presentation is prepared by Don Morton, has not yet been built. In such instances, a scale model serves the purpose, as pictured above. When the subject must be shown in motion, this is produced either by controlling it by fine wires as it is being photographed, or by stop-motion animation.

Imagine the problems, for example, facing a salesman trying to sell a $1\frac{1}{2}$ million bridge miller which measures 130 feet long, 40 feet wide, 35 feet high, and exists only on a drawing board!

In the past, blueprints and scale models were the only answer. Since the fall of 1959, however, 8mm sound movies have come to the rescue. And as an indication of their success, the bridge miller just mentioned was sold to General Electric Co. after initial interest was first stimulated by an 18-minute 8mm sound movie which cost only $40.00 to produce.

The entire film production, except processing and sound striping, was done by the two brothers. Yet this is strictly a sideline for the young business executives. Don, who handles photography, is sales engineer, and Robert, who takes care of sound, is executive vice president of Morton Manufacturing, a family firm. Founded by Matthew Morton in 1875, it now lists seven Mortons, including five sons representing the fourth generation. It employs 125 and has some 35 sales representatives in the U. S., Canada, Europe and Asia.

Morton's movies, shown with three Kodak Sound 8 Projectors, have made it possible to stimulate interest, create understanding, and *sell* expensive, highly-specialized equipment without first building it.

Robert Morton uses one of the projectors to re-

Continued on Page 250

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TO BE SALEABLE, a film must have strong human interest, says Hal Linker who has made films in more than 70 countries. Good camera equipment in top working condition is also essential. Here Linker photographs with a Bolex camera a native dance on a South Pacific island.

Seeking A Market For Your Films?

Free-lance cinematographers everywhere ask the question: "Where can I sell my films?" For on onswer, the editors went to Hal Linker, well-known lecturer-filmer and TV film maker who has sold his movies to many morkets.

By CHARLIE SEE

IF YOU'VE TRIED WITHOUT SUCCESS to find a market for the films you make, or can make, scores of other 16mm and 35mm cinematographers join you in your frustration. Markets for films, especially from unknows, are understandably scarce; and even well-established professionals do not always find ready buyers or even assignments on speculation.

The increasing number of letters that have come from readers asking *American Cinematographer* to put them in touch with reliable buyers of film, led the editors to make a number of inquiries. This, happily, led to Hal Linker—a man who has become eminetly successful as a producer of 16mm travel films and who started like so many others with a home movie camera and more than a little creative ability. Hal, his wife Halla and son David together have filmed in 75 countries throughout the world. Today the trio is well known to national television audiences as the Hal Linker Family whose "Wonders of the World" weekly television program is now in its fifth year. Linker's book, "Three Passports To Adventure," published by Doubleday, and a Literary Guild selection, makes it debut in book-

stores late this month.

During World War II, Hal Linker graduated from home movie making to shooting with a professional Eyemo camera. As an Amphibious Forces Intelligence Officer, he covered the invasions of Iwo Jima and Okinawa as well as other Army and Navy campaigns in the Pacific. By the time he had returned to civilian life, he knew that making movies for money was the profession for him. But instead of shooting film and then seeking blindly for a market for miscellaneous footage, Linker carefully planned his shooting, edited his films with a purpose, and marketed the results directly to people—by way of the lecture hall. By the end of 1956, Hal Linker had produced and exhibited an impressive collection of travel films in color on many lands. Next he proposed to a national advertising agency that his films might make a successful TV series. KCOP-TV in Los Angeles liked the idea and its television debut took place early in January, 1957. Linker has been on the air each week since then; his series, in a syndicated version, has been sold in over 30 U. S. cities as well as in 6 foreign lands, including Siam.

Hal Linker a Qualified Adviser

Hal Linker's film and television successes have led him into other business activities. He operates a successful travel agency on Wilshire Boulevard in Los Angeles—a "natural," considering that he has traveled the world over and has friends and business contacts in many countries. He also is President of Hal Linker Productions, a company that specializes in commercial, television, documentary and exploitation films. Clients include Sabena Belgian World Airlines, Canadian Pacific Airlines, the governments of Iceland and Pakistan, and Branff International Airways. Together his successes easily qualify him as an adviser on who and what to film and where to sell it.

"Professionals in the film business—those who buy, sell or exhibit motion pictures—can tell whether a film has market value the first few minutes it is on the screen," Linker says. "The human interest angle must be genuinely and intelligently developed. This demands imagination and a keen sense of pictorial and action continuity. The photographic quality must be high, and it is imperative that the filmer use a good tripod and keep handheld shots to a minimum." The successful producer of travel or documentary films, Linker adds, instinctively knows what interests audiences who seek this type of entertainment.

As to the possible markets for 16mm films produced by unknowns, Hal Linker lists four which he believes have a potential. These are television, education, major motion picture studios, and film libraries.

Television: Unless a newsreel subject or documentary film intended for television is both timely and newsworthy, there is little or no market for a single-reel subject except, perhaps, for a show such as "Omnibus." This is an NBC-TV network program and frequently uses films 10 or 12 minutes in length. If you have a film you believe qualifies for this program, write Executive Producer, Omnibus, NBC-TV, 30 Rockefeller Plaza, New York, N.Y.

Markets For Single Subjects

Another possible market for single subjects running 23 to 26 minutes in screen time is Jack Douglas Enterprises, Inc., Los Angeles, which produces the "I Search For Adventure" and "Seven League Boots" TV programs. Bruce Campbell is producer, and the address is 8833 Sunset Boulevard, Los Angeles, Calif. A similar market is Bill Burrud Productions, 1522 No. Van Ness Avenue, Hollywood 28, Calif. It is advisable to write both markets in advance and query them about their requirements and rates of payment Another possible market, although a small one, is Len Stuttman who programs films on station WOOD-TV in Grand Rapids, Michigan.

One of the most successful of the travel and adventure programs currently on television is the "World Adventure" series produced by George F. Pierrot of the Detroit Institute of Arts, Detroit, Michigan. This show has been on the air longer, perhaps, than any other travel program. A requirement in marketing your film here is that you must agree to appear in person with the film at the time

Continued on Next Page

MOST OF Hal Linker's travelogue filming has been a family project, with wife Haila and son David participating Together they have had many interesting adventures traveling and shooting the films which have been seen on Linker's "Wonders of the World" television program

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SEEKING A MARKET FOR YOUR FILMS?

Continued from Preceding Page

it is televised. However, arrangements can be made for videotaping such an appearance at a convenient time for later showing with the film. Address Mr. Pierrot at Suite 620, Farwell Building, Detroit 26, Michigan.

Educational Films: In this field there are now only a few producers interested in purchasing single short subjects. Most established producers of educational films have their own production staffs and prefer to have their staff cameramen or well-established free-lance cameramen with whom they have long contact do their filming. Some do purchase films from free-lancers, but the occasions are growing increasingly rare and in most instances it is because the film offered is from a foreign land and less costly than would be the case should the company send its own crew out of the country to photograph it.

Two of the major educational film producer-distributor organizations which occasionally buy films made by independents are Encyclopedia Britannica Films, Wilmette, Ill., and Coronet Instructional Films, 65 East Southwater Street, Chicago. According to Hal Linker, Coronet offered him $1,000 for a complete one-reel subject produced on their order. The company supplies the film stock and the picture must be shot strictly according to the script provided by Coronet. The producer, according to Linker, pays all expenses connected with shooting the film, and when it is completed it is turned over to Coronet together with all rights. Britannica reportedly will pay $2,000 or more for a complete one-reel subject. Qualified film makers should write either company in advance as to their requirements, etc.

Major Film Studios: With wide-screen photography the order of the day, opportunities to market footage to Hollywood studios become more and more infrequent. Today, if a studio needs coverage of some event or place for a current production, a studio camera crew usually is dispatched to get it. Sometimes the studios obtain the footage they want from stock shot libraries in Los Angeles or New York, and not infrequently from individuals. Linker's last leasing of footage to a major studio was in 1953 when a whaling sequence he filmed off the coast of Iceland was used in "The Sea Around Us," a documentary short subject which subsequently won an Academy Award.

Among the Hollywood studios it has always been in the realm of short subjects production that the free-lance cinematographer or film producer has made profitable sales in the past. Today, the production of short subjects for theatrical release has almost ceased. Warner Brothers Studio has been rumored planning to reactivate its short subjects production, but *American Cinematographer* has been unable to confirm this. It was Warners that first recognized the outstanding work of Larry Lansburgh and subsequently profited significantly with several short subjects which he produced for them. (See "Cameraman On Horseback," March, 1961, *American Cinematographer.*) Walt Disney, at one time perhaps the most prolific producer of short subjects, now does very little in this field. At the present time Disney Studio is not interested in purchasing either footage or complete film subjects from free-lance cinematographers.

Film Libraries: Perhaps the most receptive market for the free-lancer's film footage is the film library. There are a number of these in Los Angeles, Chicago, and New York. Neither Hal Linker nor *American Cinematographer* makes any recommendations here because dealing with some film libraries sometimes is fraught with disappointment and frustration, for a number of reasons. Sending your original film to some new and untried individual or company can be risky.

Film makers in foreign lands who send their films to libraries in the U. S. on speculation, have no way of checking on the use of their films. They may receive no money whatever for a year or more, and often no report at all which would indicate the submitted films were producing rev-

DEFERRED

The follow-up article on TV film photography by Stanley Lipinsky, promised for this issue, will appear in our May issue —Ed

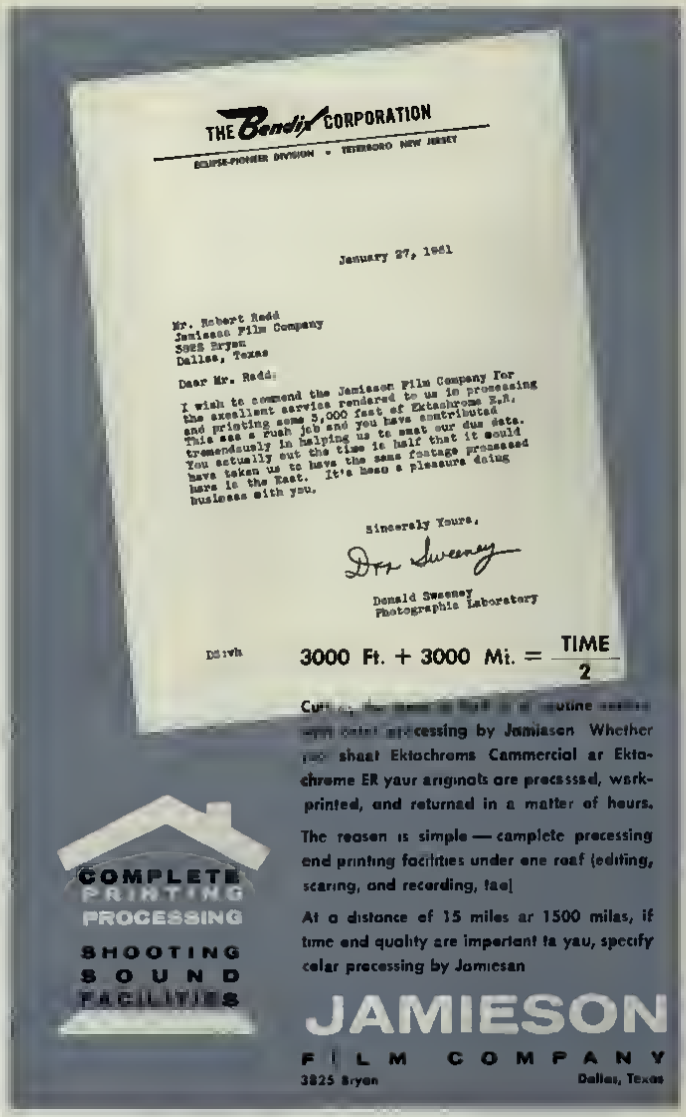
enue. This is not to imply dishonesty on the part of the libraries, but rather to point up the fact that most libraries have so many films and so much miscellaneous footage on so many subjects, that the film you submit on speculation can easily become lost in the shuffle. The best procedure here, according to Hal Linker, is to write the libraries and inform them of the films you have to offer—describing them in detail—or advising what you are prepared to shoot on special order.

The great risk, of course, in submitting a film to an unfamiliar market or prospective purchaser, is that of unauthorized use. But even established film libraries face this risk. A method the libraries often use is to submit a purposely badly-scratched *print* for screening purposes, and to send the original only when a deal is made following this screening.

Linker emphasizes that there are real opportunities for marketing films and odd footage profitably to certain libraries, however. He cited instances where recently he was contacted to supply a sequence on coffee making. It happened he didn't have such film but knew where he could get it in a hurry and the order was filled. He cites a free-lance cameraman who sold a short subject on banana growing in Central America for $2,000. Another who marketed a documentary on mining tin at a substantial price.

In most cases, Linker points out, the foreign free-lancer must shoot on speculation. As to how much to charge for his work, the free-lancer has had little or nothing to go on. A spot check in and around Hollywood turned up this information: 16mm footage for television films generally brings $5.00 or more per running foot for one-time lease of the material. For footage for theatrical short subjects produced by major studios (already reported above as practically a dormant industry), the price paid has been from $7.50 to $20.00 per foot of 16mm color film.

Let us now consider the lecture field, which was not included in the list of potential markets for film makers. Except, perhaps, for the late Burton Holmes and one or two of the men who now carry on his work in the Holmes tradition, almost every film lecturer shoots, edits and narrates his own material. The film lecturer, therefore, must indeed be a versatile person. In addition to having ability as a maker of interesting films, he also must be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able to present them in lecture halls with compelling interest. Hal Linker is an outstanding example of such a lecturer, one with a most enviable and profitable record — having lectured from coast-to-coast for almost ten years before he turned his primary attention to television.

While a great deal might be said about the attributes necessary to become a film lecturer, it is generally conceded that the successful lecturer is born, not made. If you haven't got what it takes, there isn't much, then, that you can do about it. The other factor is the lecture film itself. To photograph and edit a lecture film that will click with audiences, says Linker, the film maker must have a keen sense of what lecture audiences will like.

No less important, Linker emphasized, is the filmer's ability to turn out top quality films; to do this his camera equipment must be in excellent condition and he must have the experience and ability to use it in a manner to produce photography of full professional quality.

When shooting his lecture and television films, Linker's camera equipment consists of two 16mm Bolex cameras and an Eastman Kodak K-100 which he prefers for its lengthy film run—40 feet on one winding of the spring motor. All the cameras have turrets and are equipped with a full complement of lenses. For supplementary illumination, where 110-volt current is available he uses a bar-light that holds four photo-spot lamps. Otherwise he uses a Frezzolite powered by a battery pack.

Space does not permit relating in detail Hal Linker's filming techniques, and how he became a successful lecturer and a renowned television personality. All this the reader will find set down in his new book, "Three Passports To Adventure." We hope, however, that his expert advice, quoted in paragraphs above, will prove genuinely helpful to the many free-lance 16mm and 35mm film makers who today eagerly seek opportunities for recognition and success in their work. ■

CINEMATOGRAPHY SERVES DOUGLAS AIRCRAFT CO.

Continued from Page 221

duction activities at Douglas, the chief function of this department is the production of sales, public information and training films. The department is housed in spacious and well-equipped quarters in a separate building situated some distance from the company's main plant in Santa Monica, California, and is officially known as the Advertising Film Services department.

"Our film production activity is not just an adjunct of production or engineering," Gibson explains. "We are recogoized by all departments of the company as its visual aids experts, and we are available at all times to help solve any problems that may be facilitated by still photography or motion pictures. I believe we are unique in that we are the only aircraft, missile and electronic component manufacturer in the country having a single, centralized photographic department. Here we produce all the visual aids required by the Douglas plants in Santa Monica, Long Beach and El Segundo, Calif., and in Tulsa, Okla., and Charlotte North Carolina."

The department is staffed by 33 full-time employees. Past experience has shown that it is economical to have phases of film production done outside the plant by specialists in such fields as film editing, art work, animation, and sound services.

"It was found impractical to over-staff the department," Gibson explains, "because the work load constantly fluctuates. It is therefore more advantageous to maintain a solid staff level and use part-time help or outside contractors whenever the work load increases temporarily."

Several of the personnel in the department have multiple skills and can double in brass whenever necessary. Gibson, who heads the department, is a professional cinematographer. Two of the producer-directors are also capable cinematographers. Jack Gabrielson, who manages motion picture production, was formerly a writer and still does some scripting.

Douglas' camera equipment consists of 16mm Arriflexes, Bell & Howell 70's, Mitchells and Auricons. A Magnasync sound recorder, which interlocks with the Mitchell-16, is used for recording the nominal amount of lip-sync dialogue that is done in the department. For recording location sound effects, an Ampex ¼-inch tape recorder is used.

The Douglas Aircraft Film Services Department is uniquely equipped for any type of location production—either in and around the vast plant itself or on distant locations. A fully-equipped location truck, shown in one of the photos, transports all the lighting, camera and grip equipment necessary for shooting on an average location setup. The equipment, shown neatly displayed around the truck in the picture, includes such set lighting units as 6 Seniors, 6 Juniors, 6 Baby Solarspots, 4 Sky Pans, 2 Ten-K's, 2 Double Broads, 2 Single Broads, and 4 Cinelites. Accessory equipment includes 4,000 feet of lighting cable, 6 four-hole junction boxes and cable, 8 spiders, 2 Blue Comet booms, and miscellaneous diffusion units for the lights. A 4-wheel dolly with hydraulic boom provides mobility for moving-camera shots, and a 1500-watt generator provides power for work lights and the camera.

Especially noteworthy is the department's capacity to develop special equipment or accessories for its own peculiar needs. One significant example is a radio-controlled camera protective housing which enables a motion picture camera to be placed in operation closer to a missile launching than would be possible with a manned camera. As a result it is now feasible for photo instrumentation personnel to install remote-controlled cameras as far ahead as ten hours prior to a missile launch or static firing. During this standby period adverse weather conditions cannot affect the camera or its control equipment in any way. The heavily insulated housing protects the equipment against heavy rains, sand storms and excessive temperatures as high as 900 degrees.

The housing, designed by Bill Gib-

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son and pictured on page 221, is made from formed fiberglass laminate, and has a styrofoam lining that creates an excellent insulation from extreme cold or hot temperatures. Within the housing is a transistorized multi-channel Citizens Band radio receiver. This receiver, through a self-contained selector switch, allows the camera to be started at any desired time during the countdown. One multi-channel transmitter set up at base of operations is used to start any pre-selected sequence desired at the various camera locations. This method of utilizing radio remote control eliminates the need for stringing cables between the cameras and the control center. It also allows operating personnel the freedom of placing cameras in the field without restriction to existing camera pads or cable. The unit has been successful in controlling cameras located up to 15 miles from the control center.

So successful, in fact, has been use of Gibson's housing and control system that it is now being manufactured and marketed commercially under the tradename "Sentinel" by Photo-Metric Instruments, Inc., of North Hollywood, California.

Among the achievements of Douglas Aircraft's Film Services Department are motion pictures made by a camera mounted on a Nike Zeus missile in flight, and the development of a film-treating method that eliminates film jamming and breakage from brittleness when cameras are subjected to extremes in temperatures in the course of research and testing projects.

The camera installed on the Nike Zeus missile was a modified GSAP gun camera, which had been reconstructed to withstand the tremendous G-rate of ultra-high velocity. It carried a 50-foot magazine of 16mm film and operated at 64 frames per second. It was remotely controlled to start running at the moment the rocket was launched. Films made by this camera in flight—reportedly the fastest that a camera has traveled in the earth's atmosphere—were successfully recovered and provided valuable records for engineering study.

A major problem encountered when operating motion picture cameras in extremes of heat or humidity has been the tendency of the film to jam in the film gate; or when operating in extremely cold temperatures, for the film to become brittle and break readily. Both conditions had been encountered earlier in operating cameras close to

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the tremendous heat given off hy rocket engines, and when making photographic records with the cameras in cold chambers where temperatures often descend to 100 degrees *below* zero! The Film Services Department experimented with a number of commercial film coatings, finally found one that would hick both problems.

The Department never suffers for lack of projects or assignments. One current project is the company's Oral Presentation Program wherein motion pictures aid in training management personnel as effective speakers—held a vital asset for those in the company who regularly must present company proposals to both civilian and military customer prospects, or present oral briefings, progress reports and sales presentations.

Company executives having such responsibilities are given a hrief course of training culminating in an audio-visual record being made of their speaking performance in the department's sound studio, before a single-system motion picture camera. As soon as such record is processed, it is screened for the individual in company with the program manager who points out possihle areas of improvement for the executive and tben presents him with the film as a means of study.

In the purely technical field, the department's cameras and personnel are constantly husy, particularly in connection with company's activities in the National missiles program. Now the advantages of videotape are being considered. In preparation is a series of industrial relations subjects which will be produced with television cameras at KTLA, Los Angeles, and recorded directly on video tape. Each subject will be edited down to 20 minutes air time, then transferred to motion picture film from which printa will be made for distribution to the company's various divisions.

Thus, Douglas Aircraft's Film Services Department is keeping abreast of modern day communications methods, and now will utilize the newest recording technique which has proven ideal for many motion picture needs for television and for the production of some industrial and feature films. ■

CAMERAS RECORD CLOSE PLAYS IN BASEBALL

Continued from Page 227

The camera, mounted with a six-inch telepboto lens and a 400-foot magazine, sat on a heavy base anchored to the booth. It also could be quickly moved to two pre-selected positions—first and second bases in this case.

As cameraman, it was necessary for the author to look out on the playing field through a lightproof peephole having an eye-piece so shaped that, when the photographer's eye was against it, it molded around his face and was light-tight. Also, as a precautionary measure, a black focusing cloth was used.

Situated thus, it is up to the photographer to keep track of the game's score and "out" situation, and anticipate a close play far enough in advance to begin shooting when the base runner is three steps from the bag.

In other words, the cameraman is in a position similar to trying to manage a baseball team from a closet with a tiny peephole. He has to match strategy as fast as a ball club manager, while being "in the dark," figuratively and literally.

Problems were thus presented that only experience could solve, and it did. The author soon managed to anticipate close plays and once covered both halves of a double-play.

The camera, although capable of speeds up to 1000-frames a second, achieved optimum results on baseball plays operating at only 360-frames a second. Thus, covering an average play consumed some 15 to 20 feet of film. On an average, we shot about 20 plays in a normal, nine-inning game.

After a critical play has been photographed, the film is ripped off the sprockets and handed through a small door to the lab technician in the adjoining section of the two-part booth. From then on, it is up to him.

The film is souped in a special formula developer at 95 degrees for 30 seconds for day games, and for about 35 seconds for night games, then fixed in Kodak Rapid Fix for 10 seconds. (Later it is fixed more permanently).

The lab technician then closely examines the approximately 180 frames of film in search of the one frame which shows the hall or player reaching the base. He then takes that frame, plus the two preceeding frames which

show the approach of the ball and advance of player to the bag, and enlarges them to a composite 11" by 14" glossy print that shows the heart of the play. (See reproductions herewith.)

Total elapsed time for this combined laboratory operation is less than two minutes. The print is placed in Veeck's hands faster than it would take for a normal argument to run its course.

In the 10 games photographed last year, all plays covered upheld the umpires' decisions. Although there were numerous problems encountered in this experiment, none were insoluble. One problem was the lack of adequate light on the playing field during night games. Although adequate for players and television, it was quite a different story with our high-speed film camera.

We used Eastman Tri-X Negative Film because of its high speed and sharpness of detail. Once we had determined the proper exposure and development (proper development to us, unorthodox to anyone else), this film was found to be quite satisfactory, although we estimate we pushed it to about ASA 1600 for night games.

The second major problem was the previously mentioned one of anticipating strategy. The best solution might be to train Casey Stengel as a photographer. Barring that, however, experience was the best teacher.

A third problem was the need for constant temperature in the laboratory. Temperature variations lead to film processing difficulties. Presumably this will be solved next season with the use of an air conditioner on hot days and a heater on cold ones.

Along this line, an interesting problem arose during a cold spell in the final days of the season. The film going through the camera sprockets at high speed created static electricity which caused some "spider web" appearances on the film. Better temperature control in the future will take care of this.

Bill Veeck has pronounced himself "highly satisfied" with the pictures, both in terms of the speed in which they were made available and the quality of the prints.

Proof of this is evident in the fact that he plans to have us use two cameras next year — one over third base and one over first — covering critical plays at all three bases as well as home plate. ■

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SET LIGHTING

Continued from Page 233

does not tell us if it is the right ratio——that is, the lighting ratio we desire for the results we want photographically in a particular scene When a cinematographer works on the basis of ratio figures alone, he subordinates creativity to mathematics The man who wants his work to transcend the ordinary, wants his photography to show thought, individuality and creativity—won't depend solely on lighting ratios to get by. Creative cinematography depends on the photographer's ability, knowledge of composition, artistic tastes, knowledge of portraiture, plus the mechanical aspects—knowing how to handle the lights. One of the most important attributes of a successful cinematographer is knowing all the available set lighting lamps and what they will do—and more important, how to use them to produce the sort of lighting that contributes to true creative photography.

When you light a scene, you are creating an image or an effect that ultimately you will put on film To this create, you must see the effect with your eyes as you build your illumination. And if you have that intuitive perception and imagination that makes a good photographer, you'll know when you have everything just right, lighting-wise.

***Q*—Doesn't an exposure meter play an important part in lighting a set—especially in checking the lighting ratios? And don't all directors of photography rely strongly on their meters? Or do the veterans depend more on their eyes—their experience?**

A—Most all of the cinematographers I know read only the key light They know they want the negative to print within a certain range—say 10 to 15. They have in mind, of course, the kind of result they want on the screen and this depends upon the quality of the negative that is produced A heavy negative will result in an entirely different effect, picture-wise, than a thin or medium negative

***Q*—If you don't meter the fill light, just how is the intensity of this light determined for a given scene?**

A—After the key light is set, the director of photography generally backs off a bit to take in the set and then directs the placement of the fill light. The position and intensity of this light is determined by experience—by eye. I feel that a light meter is of little use here. It can record the intensity of the light but it won't tell you the result you'll get from the combination of key and fill light. When you add the fill light, there's nothing better than your eye to tell you how it's going to come out on the screen

***Q*—It is your belief, then, that a light meter should not be relied on to give you all the answers to set lighting.**

A—That is right. Cinematography—of theatrical films, at least—is a creative art that depends on the director of photography's overall photographic ability—his knowledge of composition, lighting, lenses, the techniques of portraiture in lighting and filming close-ups, and the treatment of various types of backgrounds, etc. The mechanics — the handling of lights and lighting accessories and the camera and its related equipment—I think, is the easiest part of it.

(To Be Continued)

FILM EDITING

Continued from Page 222

synchronous music or effects, it becomes necessary to edit these tracks on the table.

The various tracks are then mixed together and fed to an optical recorder to obtain a photographic printing track. After it is processed, the final preparation of the rest of the printing materials can be completed

Conforming The Originals

At this point, the edge numbers on the workprint pay off, in spades! During the editing process, scenes have undoubtedly been shifted and moved about to the point that the edge numbers (as far as sequence is concerned) are completely out of order. With edge numbered film, there is never a problem in conforming. The conforming editor goes to the vault and gathers all the original film connected with the particular show, He then breaks the original down into 400′ reels and labels each reel with the beginning and ending numbers in that reel. He then places all the reels by his editing table and begins conforming. If the first edge number on the workprint is A 0643, for example, he takes the original reel labeled A 0400 to A 0800

and runs about 200' into the reel, finds the A 0643 number and matches it exactly against the workprint and cuts in the scene—allowing sufficient overlap for whatever optical effect the workprint may call for at that point. This process is repeated until the cutting is completed.

The advantages of this method become obvious when one visualizes the laborious method of eye-matching picture content, scene for scene, from an average of 6,000 feet of original to 800 feet of edited but *un-edge-numbered* workprint.

Thus, with edge numbering, the workprint serves as a coded set of instructions, a pattern for the finished film. The original film is not spliced into a single roll exactly like the workprint. Rather, it is made into "A" and "B" rolls, one containing the odd numbered scenes, the other the even numbered scenes. During printing, the run with one roll exposes every other scene to the raw stock. The second run, with the other roll exposes all the missing scenes

With this system, double-exposure effects, such as dissolves, wipes, double-print titles, etc., become possible. Furthermore, splices are concealed by the black leader which is used between scenes.

The completely-edited film is now ready for the laboratory. If approvals have been frequent and firm during preparation, changes should be of a minor nature. If the answer print results in extensive changes, a second answer print should be made for approval before proceeding with the release prints. ■

The foregoing is reprinted with permission from a recent issue of *The Aperture*, monthly workshop publication for 16mm film makers issued by Calvin Productions, Inc., Kansas City, Missouri.—Editor. ■

DANNY THOMAS SHOW

Continued from Page 219

counteract the effect of this exclusively overhead lighting, DeGrasse has a 300-watt lamp placed low as possible oneach camera dolly. A Baby Junior with snoot is mounted on each of the side cameras to put sparkle in the eyes of players in closeup shots. The snoot pin-points the light at about 14 feet—the average distance for a closeup shot with a 4-inch lens. Each of

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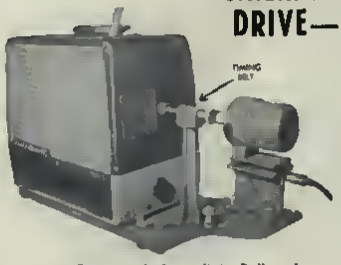

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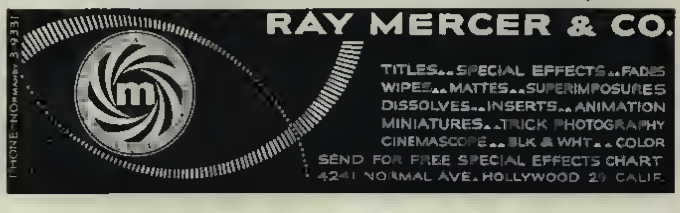
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these lamps is on a separate dimmer switch and kept dim whenever the cameras are moving to avoid causing shadows to flit around the background. When the side cameras move into a stationery position for an over-the-shoulder shot or closeup the brightness of these lamps is turned up and they serve as eye lights

The camera-to-lights relationship in three-camera filming is highly specialized because of several factors peculiar to this filming method. The sets, first of all, are fan-shaped instead of having walls set at right angles They are designed this way, not only to permit the studio audience (strung the length of the stage) to better see the action on all sets, but also to enable the side cameras to get close shots without having to move too deeply into the set itself. Secondly, the camera in the center, facing the set straight-on, shoots with a 30mm, 35mm or 40mm lens and is always framed on a longer shot of the overall action—the function of the master camera.

This means that the critical lighting (that is, as critical as it can get with all the constantly shifting elements) must be done for the side cameras rather than the front camera Consequently, lamps of key light intensity (5 kw's and 10 kw's) are mounted all along the parallels above the sides of the set, creating a strong even cross-light in all areas of the set. Thus, no matter where an actor moves, he will always be well-lighted in the closeups. The lamps illuminating the front of the set are heavily diffused Pans and Juniors which actually serve as fill light for the side (closeup) cameras. In this cross-lighting pattern the key light hitting an actor facing in one direction becomes his backlight when he is facing the opposite way. The diffused lamps fronting the set provide fill for the shadow side of his face both ways.

Admittedly this is a compromise in lighting, but a necessary one—and the over-all effect is quite satisfactory The front lighting for the master camera may be somewhat flat by critical standards, but the abundance of cross-light provides good separation and keeps the actors in sharp relief from the background.

By similar standards, the backlighting comes through a bit hot on the hair of the players but it cannot be shaded because, as already indicated above, one actor's backlight is also the key light for another when filmed in reverse angle; and if the lamps were to be shaded to cut down the backlight for the one, they would lose too much intensity to provide an effective key light for the other.

What really makes a cinematographer's blood run cold in such situations, is for an actor to miss his marks so completely that he ends up almost flat against a wall where even the cross-

Out Of The Book

YOU CAN'T TEACH TALENT

"'I want to make films.' Wide-eyed innocent, ignorant. They have seen Free Cinema, they have read Manvell and Rotha and the latest *Cahiers*, they know why *Potemkin* and *Sang du Poète* and *Kanal* are marvelous. And they want to make films

"What do they do about it? A good many of them write around and wander around till they land a job as the second cutter's second assistant. Why not? Many a director has begun his career as a tea-boy. . . . And after a year or so, when they see that this is no way to become a Vigo, and that even if they were Vigos this world would give them small welcome they probably take the sensible course and go into advertising or teaching or the army.

"If they have a little money, they might try the older method, which was something like the Red Queen's directions for getting to Looking Glass House. In the more care-free thirties you played the dilettante, worked as a bad journalist or painter or poet or novelist or truck driver, pretending you didn't really want to work in pictures—until your chance came along, and you leapt through some momentary breach in the great wall of filmland.

"And whichever of these ways they do it, if they actually go into the film business, it is as dead-weight—more amateurs whose enthusiasm adds to the embarrassments of their inexperience"—*David Robinson in International Film Annual No. 3. (Taplinger Publishing Co., Inc., New York, N. Y.)*

lights, because they are mounted high, cannot reach him. In such a case all one can do is close his eyes and pray that the editor will cut to the master shot at that point.

"The main frustration to the director of photography," DeGrasse observes, "is that you can't put the lights where you want them—and you can't shade them. Also, you cannot always make the actors look their best without restricting their freedom of movement. When you start to restrict them, of course, you lose the value of this method of shooting. But, even so, I must admit that the results sometimes look good enough on TV so that the show does not appear to have been shot with three cameras. I always feel that we have accomplished something when we can get it to look that way."

While DeGrasse works very closely with Director Sheldon Leonard in laying out camera angles during the blocking rehearsals of the Danny Thomas Show, he does not have the responsibility of directly controlling camera movement during actual shooting. At this point another member of the staff, known as the Camera Co-ordinator (roughly corresponding to the Technical Director in live television), takes over the actual direction of moving the cameras by means of telephone intercom, leaving DeGrasse free to concentrate on the lighting, dimmer controls, etc. Located in a central booth from which he can clearly see all of the sets, the Camera Co-ordinator is in direct two-way communication with all of the camera operators and dolly grips, each of whom wears a headset equipped with earphones and a small microphone. Working from notes penciled on the master script during blocking rehearsals, the Camera Co-ordinator cues the movements of all three cameras to positions previously numbered and tape-marked on the floor. Different color tape is used for the cue marks for each camera in order to avoid confusion.

After several rehearsals the crew members for each camera memorizes the pattern of moves almost by heart, but they also have their own notes taken during rehearsals which they refer to in preparation for each up-coming move. For example, if one of the cameras is shooting in Sequence C, Position 5 (C5 on the floor tape), the dolly grip will glance at his notes and observe that on a certain cue he is to dolly to position C-6. This gives him a chance to locate C-6 on the floor tape so that he can move directly and smoothly to it when directed to do so by the Camera Co-ordinator.

An incident, made amusing by the passage of time, happened a few years back just after the company had spent a laborious day blocking the action and marking all of the camera moves on the floor with tape. A painter—unaware of the floor-tape system—came in after hours, blithely removed all the tapes and painted the floor. When the company arrived on the set ready for dress rehearsal the next day and found the tapes removed, there ensued what is probably one of the fastest re-blocking sessions in the history of television.

Occasionally, during shooting, one of the side cameras will move to its next position (which is indicated on the script, for example, as an over-the-shoulder shot) and the camera operator may find, upon reaching the tape mark, that one of the actors is out of position and covering another actor.

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The crew of that camera will then, on its own, correct the situation quickly by moving to a position from which it can get a clear over-the-shoulder view. Should this remedial shot prove unsatisfactory, the situation will nevertheless be saved because the master camera will have recorded the overall action in a long shot, so that the editor will be able to cut away from the close shot without losing continuity.

On some three-camera shows, one camera may be moved from one position to another as rapidly as possible (as in live TV) with no attempt to remain on the action or preserve framing during the move—it being assumed that that camera will definitely be off the air at that point. On the Danny Thomas Show, however, every change of camera position is made smoothly, with the operator continuing to follow the action and to frame the scene just as if the entire shot were to appear on the air. This is done to provide the maximum usable footage for the editor, as well as for added protection in case of any failures occurring with the other cameras. Quite often it is found that such a movement, while not actually planned as a dolly shot, has a fluid quality that adds interesting movement to the scene.

The function of the master camera is to follow the main action at all times. This does not mean that the camera will hold on a long shot all the way through. It will begin the sequence on a shot long enough to establish the locale and the situation, then move in to frame rather closely the group of actors carrying the action — perhaps panning with them to another group. The shot is framed as tightly as possible so that there will not be too great a jump in image size when cuts are made to the closer angles recorded by the side cameras. From time to time the master camera will pull back to a long shot to re-establish the geography of the set and the relationship of the actors to each other.

Reliance On Master Camera

Were something to go wrong with both of the side cameras, DeGrasse explains, the master camera could safely provide as much as 70% of the editorially-usable film.

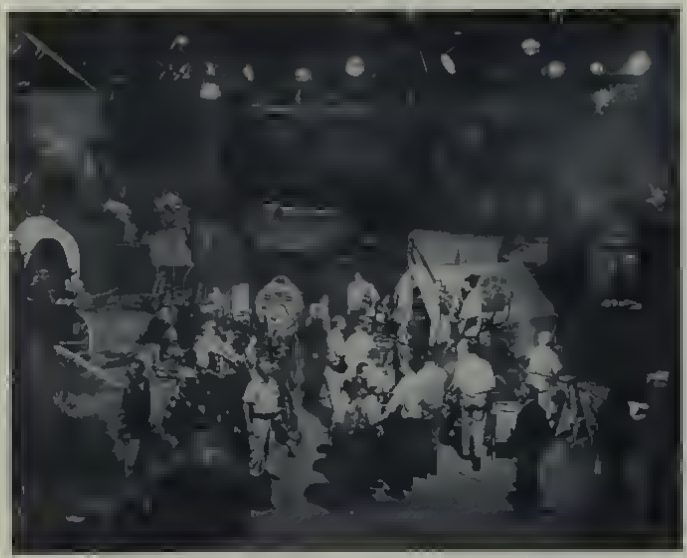
In filming the Danny Thomas Show as much of the action as possible is shot in continuous performance in order not to break the continuity of inter-reaction between the actors and the audience. For this reason the cameras often keep right on rolling as the action moves from set to set (as in a live TV show), the cameras moving to the adjoining set right along with the actors. A run is limited by the capacity of the magazine to 10 minutes, but the average sequence runs about half that long. If an unusually long sequence runs beyond the limits of the magazine, the cameras are re-loaded and the action is picked up at a point prior to where the break was made in order to allow the scene to build up again to a matching tempo.

Procedure For Pick-ups

The standard procedure on the show when an actor muffs a line is for the actor himself to overlap and repeat the line rather than stop the cameras and go back for a pick-up. However, on some shows the opinion is held that this is distracting to the sound stage audience, and they prefer to go back after the audience has left the studio and then do the scene over. The Thomas company, however, believes that such pick-ups never do achieve quite the same tempo or "feel" as the original. Therefore all such corrections are made at the time the original sequence is shooting. The only shots which are ever made after the audience leaves are occasional cutaway reaction shots or reverse angles, for example, of people at tables in a night club scene.

Importance Of Fast Film

With the actors not always able to hit the marks which have previously been precisely measured and taped for focus, a certain amount of guesswork in focusing the constantly moving cameras is inevitable. This problem is especially critical in relation to the two side cameras which invariably are shooting with 4-inch lenses. In order to get sufficient depth-of-field to provide a safe leeway of focus with such long focus lenses, it is necessary to stop down to f/5.6. To expose at such an opening with a medium-speed film such as Plus-X would require a tremendous amount of light, and the resulting heat on a tightly-shut sound stage during summer shooting would be unbearable. So, out of consideration for the comforts of the cast and crew, DeGrasse decided to use the faster Tri-X film. Its relatively larger grain made him cringe slightly when viewing the dailies in the projection room, he admits, but he took comfort in the fact the slight increase in grain goes relatively unnoticed when the picture is reproduced on the average home receiver. Now, hap-



ON THE "CHEYENNE" SET—Crew get-together marks start of 6th consecutive year of filming the 'Cheyenne' TV film series at Warner Brothers' Studio in Burbank. To right of the Mitchell camera (center of picture) is Roy Fernstrom, ASC, who has photographed an increasing number of the shows in the series in recent months. The 'indoor exterior' is a standing set on Warner's Stage 19 and is so designed it can serve a wide range of scenic needs.—Photo by John B. Mantle and © by Warner Brothers

pily, the problem has been eliminated thanks to the recently-introduced fine-grain Double-X negative.

After eight years of filming the Danny Thomas Show, Bob DeGrasse still is enthusiastic about the three-camera method of shooting a TV show on film before an audience. Although the method necessarily imposes some sacrifices in technical quality, "it is worth it," he says, "if it gives the show a special spark and spontaneity that could not be achieved in any other way."

"I do feel," he continues, "that if you are not going to use this method to full advantage and get the most out of it, it is better to stick to the single camera procedure and try for maximum technical quality. However, using the three-camera method, we spare no effort to get the best possible photographic results under the conditions multiple cameras impose, and we do not settle for anything less. Frequently we have opportunity to use light changes and spotlight effects imaginatively when we work on the "night club" set. Then it is a challenge to juggle camera angles and use wide-angle lenses in an effort to make ten people look like a big crowd. Sometimes we get a pretty good illusion this way, and when we see it on the screen we are moved to remark: 'You know, that's not too bad!' "

"Well," DeGrasse concluded, "that's the whole fun of it, I think—and it has to be fun. When it gets to the point where it is no longer fun, then its better to go fishing." ■

"OSCAR" NOMINEES

Continued from Page 230

Nevada. "Sons and Lovers" (Freddie Francis) was shot entirely in England.

The final balloting among Academy members to determine the best motion picture achievements of 1960 in all 25 categories for which "Oscars" are presented began on March 17th. The winners will be announced the evening of April 17th during the Academy's presentation ceremony which takes place this year at the Civic Auditorium in Santa Monica, California. The program will be carried over the combined radio and television facilities of ABC and the Canadian Broadcasting

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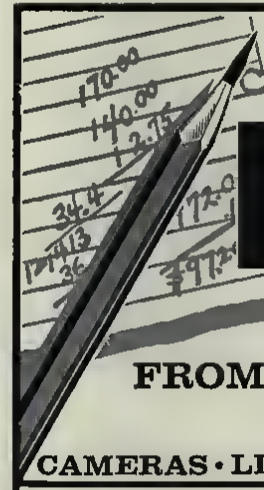

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Charles Rosher, ASC, and Karl Struss, ASC, won the first year's "Oscar" awards for cinematography for "Sunrise," which they co-photographed. William Mellor, ASC, for "Diary of Anne Frank," and Robert Surtees, ASC, for "Ben-Hur" were last year's winners for best photography of 1959.

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Continued from Page 234

cord sound on the pre-striped films Philadelphia and San Francisco sales offices have the other two with which to cover the east and west coasts. The projectors are portable (30 pounds) and provide a sound quality comparable to 16mm. Additional projectors are expected to be in use soon.

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Don Morton shoots with no advance script, only a general idea of the story he wants to tell. In those rare cases where the machine about which he is preparing a movie has been manufactured, he shoots it either on test at Morton, or, if necessary and possible, at the plant where it is in use. Having a finished machine to photograph is always the preferred way, of course. Nothing can beat showing actual equipment in use.

For lighting, he often uses as many as five light-bars plus several individual lamp units. He uses 500-watt bulbs in the bars for plant work, and 375-watt lamps for ordinary shots.

Whenever Don is unable to illuminate a huge completed machine satisfactorily for Kodachrome Film, he makes color transparencies of it, using a 35mm camera and Kodak High Speed Ektachrome Film.

These slides are subsequently re-photographed on 8mm color film and incorporated into the movies. Re-photographing the slides is accomplished by attaching a combination of closeup lenses to the zoom lens on the movie camera. The camera is mounted on a titling stand with a photoflood lamp shining up from the floor. Don places the 35mm transparency against the register point of the camera and photographs it. By simply moving the slide sideways, or zooming in and out, as the slide is shot gives the impression of motion or panning.

Once they are intercut with the rest of the 8mm film, the moving pictures of 35mm slides are all but indistinguishable from the rest of the film.

Most often, however, the subject of photography is a machine which will be built only if it is sold. In this case, Don Morton resorts to photographing models and then blending in shots of whatever actual machines of similar type are available.

Wooden or plastic models, built on a scale of ¼-inch-to-the-foot are made of large and unusual machines for engineering purposes, and, thus, are available for movie-making, too.

Don has found two principal problems in photographing models: supplying even lighting and accurately simulating motion. The illumination problem is solved simply by careful placement of the lights. As for motion, two methods are used:

The simplest is to rig the model with fine wires so that it can be manipulated in a manner simulating the actual machine operation. Electric motors or counter-weights are also used on occasion.

If these procedures are impossible, or if the wires are visible and thus spoil the effect, Don resorts to single-frame photography. With this method, he shoots one frame, moves the model a small increment, shoots another frame, moves another increment, and so on.

In either case, by shooting close-up and often, and using a realistic background, the animated model effectively demonstrates realistically what the actual machine can do. Authenticity is increased by including genuine machine noises on the soundtrack.

The exposed film is sent to a laboratory in Chicago for processing. When it comes back, Don edits it into logical sequence on an 8mm film editor, with a Kodak Presstape Movie Splicer attached. He prefers the dry splice to the wet.

Once Don has cut all the film, he projects the rough print several times and cuts out anything he doesn't want.

Continued on Page 252

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DO IT YOURSELF WITH 8mm

Continued from Page 250

Then he runs it through a final time to make sure it is in the proper sequence Now, brother Bob sees it for the first time.

The two then decide where to put titles and what they shall say. (A minimum of titles, of course, are required for sound movies.)

Don then shoots the titles, which are composed of cast block letters arranged in order on a background of colored cloth placed on the floor.

For an unique effect, the letters sometimes are cemented to a panel of glass which is then placed in front of one of the machine models which serves as a background

Or, he may set up one letter of the title, shoot several frames, add another letter, shoot several more frames, and so on. In this way, the film's title letters seem to appear from nowhere.

Another novel procedure Don has devised is that of a miniature stage, with curtain, for the opening and closing shots. This stage is made of corrugated fiberglass and measures three feet wide by two feet high. By opening or closing the curtain an effective, professional touch is achieved.

After the titles have been processed and spliced into the proper places in the film, it is completed except for sound.

Bob Morton first runs the film through the Kodak Sound 8 Projector and times each scene. A synchronous motor drive has been added to the projector to control its speed, thus eliminating any chance for timing error caused by voltage variation, a cold projector, etc. In this way, one run-through establishes the screen time of each scene

The film is then sent to a laboratory for processing where the desired number of duplicates are made and a magnetic sound stripe applied to each

In the meantime, a narrative script is written to match the film and recorded on one sound track of a stereophonic tape recorder. A musical background is also prepared, plus appropriate machine sound effects picked up in the plant with a directional microphone. These are recorded on the recorder's other track. A synchronous motor drive guarantees accurate speed control of the recorder.

When the film with its magnetic stripe is received, it is placed in the Kodak Sound 8 Projector for addition of the sound The recorder is plugged in, the starting points matched, and the sound from the tape is recorded onto the film's sound stripe.

One great advantage of the magnetic sound track is that the same film can serve an effective sales tool for a wide variety of audiences simply by recording a different sales message on each of several duplicates. One can be slanted for top management, another for engineering, another for production personnel, etc.

At this writing, finished 8mm films include three with sound: "Morton Bridge Miller," "Twenty-five Foot Rotary Grinder," and "Morton Model M L P"; plus one without sound: "Vertical Trepanning."

The films, which run from seven to 22 minutes, have been shown to such major machine tool users as General Electric, Westinghouse, Blaw-Knox, etc.

They are accomplishing their goals of stimulating interest and creating understanding as no other method has been able to do, say the Mortons. And, they have solved the problem of how to sell expensive, highly-specialized equipment without first building it.

For these reasons, more and more 8mm sales films are scheduled to be produced at Morton Manufacturing in the future.

QUESTIONS & ANSWERS

Continued from Page 212

the source or main direction of light used to illuminate the principal characters Key light means source light It may be strong, or very soft It may be "hard," simulating sunshine, or soft—as the light reflected on the subject from some adjacent surface. It can be all-enveloping light, such as found in a shaded area.

Set lighting patterns are dictated by the requirements of the scene to be photographed (what it is about; time of day or night) In other words where should the light come from and what are its visible sources? What is the mood required? These considerations set the pattern for the placement of lights.

You will find more on this subject, incidentally, in the interview-article on set lighting beginning on page 232 of this issue. ■

PHOTOGRAPHIC ASSIGNMENTS

Continued from Page 208

REVUE STUDIOS

RUSSELL METTY, ASC, "Flower Drum Song" (Panavision, Ross Hunter Prod.) with Nancy Kwan and James Shigeta. Henry Koster, director.

EMIL HARRIS, JOHN RUSSELL, ASC, RAY FLIN, "Wells Fargo"*

ELLIS THACKERY ASC, "Westinghouse Playhouse"*, "Bachelor Father"*

JOHN WARREN, ASC, "Father's Day"* (pilot) "The Investigator"*

RALPH WOOLSEY, ASC

Directed the photography of "Claudelia Inglish," starring Diane McBain and Arthur Kennedy, at Warner Brothers last month, more recently has been shooting some of "The Roaring Twenties" and "Surfside 6" TV films

JOHN WARREN, ASC, ROBERT GOUGH, "Tall Man"*

JACK MACKENZIE, ASC, JOHN WARREN, ASC, RAY FLIN, "Shotgun Slade"*

BENJ KLINE, ASC, JACK MACKENZIE, ASC, "Checkmate"*

JOHN RUSSELL, ASC, "My Uncle Elray"* (pilot)

KENNETH PEACH, ASC, "Thriller"*

MACK STENGLER, ASC, "Leave It to Beaver"*

WALTER STRENGE, ASC, "Wagon Train"*

RAY RENNAHAN, ASC, "Laramie"*

EMIL HARRIS, "Bringing Up Buddy"*

ARTHUR E ARLING, ASC, "Lover, Come Back" (U-I-7 Picts.—Nob Hill-Arwin) with Rock Hudson and Doris Day. Delbert Mann, director.

NEAL BECKNER, "Alfred Hitchcock Presents"*

BENJ. KLINE, ASC, "Frontier Circus"*

TWENTIETH CENTURY-FOX

PHILIP LATHROP, ASC, "Hong Kong"*

ELLSWORTH FREDERICKS, ASC, "Jay Hawker"* (pilot)

WILLIAM MELLOR, ASC, "Ginger Rogers Show"*

N SHIFTON, "Sin of Angels" (C'Scope; Rossen Ent., shooting in N.Y.) with Paul Newman and Jackie Gleason. Robert Rossen, producer-director.

FREDDIE FRANCIS, "The Innocents" (C'Scope; England Achilles Film Prod.) with Deborrah Kerr and Megs Jenkins. Jack Clayton, director.

BRYDON BAKER, "20,000 Eyes" (C-Scope; API) with Gene Nelson and Merry Anders. Jack Leewood, director.

FLOYD CROSBY, ASC, "The Two Little Bears" (C'Scope; API) with Eddie Albert and Jane Wyatt. Randall F. Hood, director.

LLOYD AHERN, ASC, "Adventures in Paradise"*

KENNETH PEACH, ASC, "The Battle of Bloody Beach" (C'Scope; API) with Audie Murphy and Dolores Michaels. Herbert Coleman, director.

WINTON HOCH, ASC, "Voyage to the Bottom of the Sea" (C'Scope and color, Irwin Allen Prod.) with Walter Pidgeon and Joan Fontaine. Irwin Allen, director.

LUCIEN BALLARD, ASC, "Marines, Let's Go!" (C'Scope & Color, shooting in Japan) with David Hedison and Linda Hutchins. Raoul Walsh, director.

WALT DISNEY STUDIOS

EDWARD COLMAN, ASC, "Babes in Toyland" with Ray Bolger and Tommy Sands. Jack Donohue, director.

WARNER BROS.

HAROLD STINE, ASC, "The Couch" with Grant Williams and Shirley Knight. Owen Crump, producer-director.

HARRY STRADLING, ASC, "A Majority of One" (Mervyn LeRoy Prod.) with Rosalind Russell and Alec Guinness. Mervyn LeRoy, producer-director.

WILLARD VANNERVEER, "Maverick"*

GLEN MACWILLIAMS, ASC, RALPH WOOLSEY, ASC, RAY FERNSTROM, ASC, ROBERT TOBEY, ASC, "Roaring Twenties"*

BURT GLENNON, "Lawman"*

ROBERT HOFFMAN, ROBERT TOBEY, ASC, EDWIN DUPAR, ASC, LEWIS JENNINGS, "Hawaiian Eye"*

LEWIS JENNINGS, JACK MARQUETTE, GLEN MACWILLIAMS, ASC, RALPH WOOLSEY, ASC, "Surfside 6"*

CARL BERGER, ASC, ROBERT HOFFMAN, "77 Sunset Strip"*

EDWIN DUPAR, ASC, "Las Vegas Presentation Film"* (pilot)

H. F. KOENEKAMP, ASC, Commercials*

MEREDITH NICHOLSON, Commercials*

HARRY WAXMAN, "The Roman Spring of Mrs. Stone" (Color; AA Prod.; shooting in London) with Vivian Leigh and Warren Beatty. Joe Quintero, director.

RAY FERNSTROM, ASC, "Bronco"*

THOMAS TUTWILER, ASC, Commercials*

ARTHUR ARLINR ASC

Directing the photography of "Lover Come Back," at Universal-International Studios for producers Stanley Shapiro and Martin Melcher. Featured are Doris Day and Rock Hudson

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KENNETH PEACH, ASC, MONROE ASKINS, "Sea Hunt"*

RICHARD RAWLINGS, ROBERT WYCKOFF, "Malibu Run"*

MONROE ASKINS, "Some Like It Hot"* (pilot)

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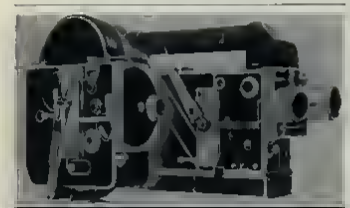

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CINE-TECHNICAL TRENDS

Controlled Double Exposure Measures Movie Camera Steadiness

A new type of "double exposure" method for determining the steadiness of motion picture cameras was recently developed by Eastman Kodak Company engineers.

The advantage of the method lies in the use of a calibrated photographic target that looks like a flight of steps. This permits the steadiness of the camera, or film, to be measured in numbers simply by counting steps. The "stairs" are positioned accurately to 1/10,000 of an inch on a standard x-ray illuminator. A bar is placed at an approximate right angle to the steps, so that it will normally obscure several of them, and also positioned. This pattern is photographed from a set distance. Then bar and steps are interchanged, the film in the camera rewound, and the set-up photographed again.

A double exposure thus appears in each frame, and the bar obscures a certain number of steps, depending on the steadiness of the camera. Counting these steps is much easier than the judgments required in other methods. The double exposure allows measurement of both vertical and horizontal steadiness. The method, which was developed at Kodak Park, Rochester, N.Y., is fast and accurate enough for the use of cameramen in the field.

Measurement and control of camera and film movement are important in the movie industry because steadiness of the projected image is required to produce the illusion of reality on the screen.

* * *

16mm Cartridge-loading Projector

A new and simplified projector system to extend the use of film in schools and libraries has been developed under the auspices of the Physical Science Study Committee at the Massachusetts Institute of Technology.

The device is a cartridge loaded, variable speed 16mm motion picture projector. Inserted into a projector, the cartridge of film runs for 20 minutes in an endless loop so that no rewinding is necessary. High fidelity, stereophonic sound is reproduced from the sound track. The projector is quiet; it can be started and stopped at the end of the film or run continuously.

As the cartridges are totally enclosed, no smudge or dust can reach the film. The projector's sound system is completely transistorized.

The cartridge method of film projection is expected to appeal to schools, permitting teachers to insert films like slides for use in the school program; to libraries where users can take a cartridge to see a particular event in a small "view box"; to advertisers for continuous showing of a film without need for manual rewind; and for home use and rentals in which event the cartridge is adapted to permit a single running only.

* * *

Aid to Low Light Level Photographic Recording

High-Sensitivity closed circuit television equipment can be used as an aid to recording a scene where the effective exposure limitation is below the capability of direct photography. The monitor presentation is photographed by normal techniques. The effective speed of such systems has been increased rapidly during the past three years. Equivalent ASA ratings in excess of 100,000 are now available. The sensitivity of a well-designed closed-circuit television equipment is determined primarily by the pickup tube and the optics. The most sensitive tube available for the past several years has been the image orthicon or its variations. The sensitivity has been increased to the point that the statistical variation in light photons received is a limitation.

* * *

High-speed Stereo Camera

Benson-Lehner Corporation, Santa Monica, California, has been awarded an $83,000.00 contract to design and manufacture a high speed motion picture stereo camera and projection system for the Naval Weapons Laboratory, Dahlgren, Virginia, with delivery scheduled for late March 1961.

This new stereo-camera and projection system will provide engineers and technicians with greater visual perception and more correlated data for analysis. ■

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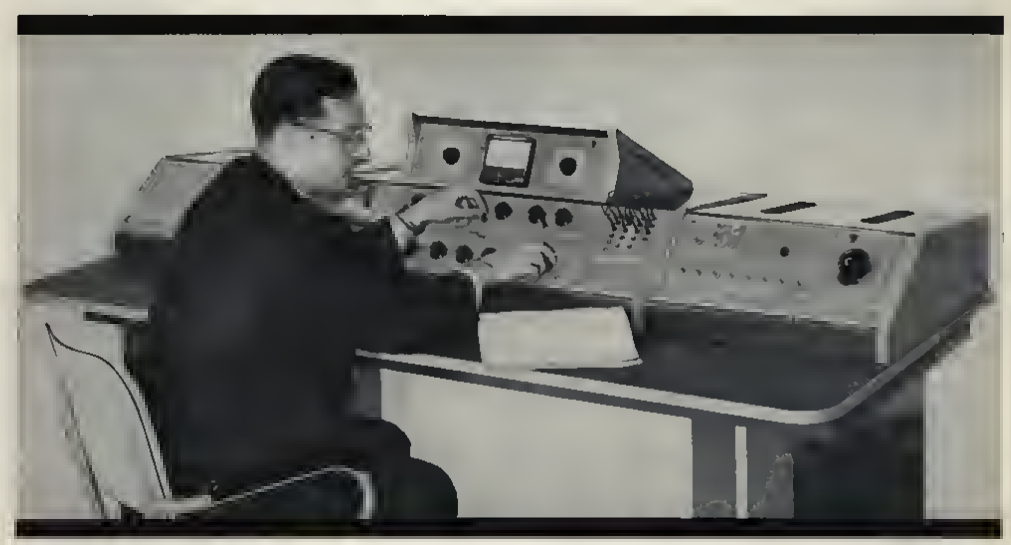

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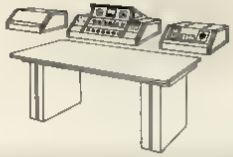

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